CHAPTER

12

SERVICING

DOUGLAS AIRCRAFT CO., INC.

DC-8 SEVENTY SERIES

MAINTENANCE MANUAL

CHAPTER 12

SERVICING

Printed in U.S.A.

DOUGLAS AIRCRAFT CO., INC.

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HIGHLIGHTS

TO:	ALL HOLDERS OF DC-8 SEVENTY SERIES MAINTENANCE MANUAL
CONCERNING:	REVISION 19, CHAPTER 12, DATED: APR 1/88
12-CONT	REVISED TO ADD NEW GENERIC TABLE OF CONTENTS.
12-IDENT	REVISED TO ADD NEW GENERIC AIRPLANE IDENTIFICATION LIST.

MANUAL UPDATE INSTRUCTIONS

PLEASE INSERT REVISED AND NEW PAGES INTO THIS MANUAL IN ACCORDANCE WITH THE CURRENT LIST OF EFFECTIVE PAGES. ALL EXISTING PAGES IN YOUR MANUAL THAT ARE BEING REPLACED WITH REVISED PAGES ARE TO BE REMOVED FROM YOUR MANUAL.

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12-20-3	50	304	JUN 1/84
12-20-3	50A	304	JUN 1/84
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12-20-3	50A	305	JUN 1/84
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12-20-4	50	302	DEC 1/84
12-20-4	50	303	JUN 1/82
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12-86-1	50	306	DEC 1/82
12-86-1	50	307	DEC 1/84
12-86-1	50	308	DEC 1/82
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CHAPTER 12

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TEMPORARY REVISION 12-6

FILING INSTRUCTIONS: Insert this Temporary Revision adjacent to Contents-12, Page 3.

Retain this Temporary Revision until notified to remove it.

DESCRIPTION AND REASON: This Temporary Revision updates effectivity and adds new section 12-70-1, Oxygen System Servicing.

EFFECTIVITY: 45810-45813, 45849, 45941, 45945-45947, 45970-45971, 45973-45978, 45983, 45993-45998, 46039-46040, 46064-46066, 46099

TEMPORARY REVISION

Subject	Chapter Section Subject	Page No.		Effectivity
PRESSURE REFUELING---------- Servicing----------	12-11-1	301	CODE 50	ALL
GRAVITY REFUELING---------- Servicing----------	12-12-1	301	CODE 50	ALL
DEFUELING---------- Servicing----------	12-13-1	301	CODE 50	ALL
ENGINE OIL SERVICE---------- Servicing----------	12-20-1	301	CODE 50	ALL
PNEUMATIC STARTERS (GARRETT)--- Servicing----------	12-20-2	301	CODE 50	ALL
PNEUMATIC STARTERS (BENDIX)---- Servicing----------	12-20-2	301	CODE 51	ALL
CONSTANT SPEED DRIVE (CSD)----- Servicing----------	12-20-3	301	CODE 50	ALL
AIR CONDITIONING UNIT AIR CYCLE MACHINE---------- Servicing----------	12-20-4	301	CODE 50	ALL
AUXILIARY POWER UNIT (APU)----- Servicing----------	12-20-5	301	CODE 50	ALL
OXYGEN SYSTEM---------- Servicing----------	12-70-1	301	CODE 50	45810-45813, 45849,45941, 45945-45947, 45970-45971, 45973-45978, 45983, 45993-45998, 46039-46040, 46064-46066, 46099
UPPER CARGO DOOR---------- Lubrication----------	12-85-1	301	CODE 50	46019,46074 46080
POWER PLANT---------- Servicing----------	12-86-1	301	CODE 50	ALL

See TR 12-6 above.

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AIRPLANE IDENTIFICATION

Manufacturing Series	Factory Serial Numbers	Fuselage Numbers
DC8-71	45810	252
DC8-71	45811	262
DC8-71	45812	277
DC8-71	45813	284
DC8-71	45849	289
DC8-71	45891	305
DC8-71CF	45897	313
DC8-71CF	45898	320
DC8-71CF	45900	316
DC8-71CF	45902	294
DC8-71	45907	288
DC8-71	45913	325
DC8-71	45914	292
DC8-71	45915	295
DC8-73CF	45936	344
DC8-71CF	45938	331
DC8-71CF	45939	351
DC8-71	45941	317
DC8-71	45944	326
DC8-71	45945	337
DC8-71	45946	339
DC8-71	45947	341
DC8-71CF	45948	321
DC8-71CF	45949	329
DC8-71CF	45950	354
DC8-71CF	45952	338
DC8-71	45963	355
DC8-73CF	45966	393
DC8-73CF	45967	385
DC8-73CF	45968	389
DC8-71	45970	343
DC8-71	45971	356
DC8-71	45973	358
DC8-71	45974	368
DC8-71	45975	369
DC8-71	45976	372
DC8-71	45977	373
DC8-71	45978	381
DC8-71	45979	363

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AIRPLANE IDENTIFICATION

Manufacturing Series	Factory Serial Number	Fuselage Number
DC8-71	45983	350
DC8-73CF	45990	375
DC8-73CF	45991	380
DC8-71	45993	382
DC8-71	45994	387
DC8-71	45995	388
DC8-71	45996	397
DC8-71	45997	398
DC8-71	45998	399
DC8-73CF	46001	395
DC8-73CF	46002	394
DC8-73AF	46003	401
DC8-73AF	46004	403
DC8-73AF	46006	413
DC8-73AF	46007	422
DC8-73AF	46008	423
DC8-72CF	46013	427
DC8-71	46014	400
DC8-71	46018	420
DC8-73AF	46019	411
DC8-71	46029	425
DC8-71	46030	426
DC8-73	46033	431
DC8-71	46039	448
DC8-71	46040	449
DC8-72CF	46043	443
DC8-73AF	46044	432
DC8-73CF	46045	441
DC8-73CF	46046	444
DC8-73CF	46047	447
DC8-71	46048	450
DC8-73CF	46049	479
DC8-73CF	46051	440
DC8-73CF	46052	442
DC8-73	46053	446
DC8-71	46055	492
DC8-71	46056	495
DC8-73CF	46059	456
DC8-73CF	46062	486
DC8-73	46063	457

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AIRPLANE IDENTIFICATION

Manufacturing Series	Factory Serial Number	Fuselage Number
DC8-71	46064	459
DC8-71	46065	460
DC8-71	46066	462
DC8-72	46067	455
DC8-71	46072	477
DC8-73CF	46073	485
DC8-73AF	46074	468
DC8-73	46076	451
DC8-73AF	46080	466
DC8-72	46081	471
DC8-72	46082	458
DC8-72	46084	473
DC8-73CF	46086	478
DC8-73CF	46087	454
DC8-73CF	46089	501
DC8-73CF	46090	504
DC8-73CF	46091	519
DC8-73CF	46094	482
DC8-73	46095	497
DC8-71	46099	507
DC8-73	46100	502
DC8-73CF	46101	489
DC8-73CF	46103	483
DC8-73CF	46104	488
DC8-73CF	46106	490
DC8-73CF	46108	522
DC8-73CF	46109	493
DC8-73CF	46112	520
DC8-73CF	46117	525
DC8-73	46123	508
DC8-73	46124	511
DC8-73	46125	515
DC8-72CF	46130	542
DC8-73CF	46133	534
DC8-73CF	46135	531
DC8-73CF	46140	528
DC8-73CF	46149	538

TOC

GENERAL - SERVICING

SYSTEM/ COMPONENT	QUANTITY US GALLONS	QUANTITY IMPERIAL GALLONS	QUANTITY METRIC LITERS	SPECIFICATION RECOMMENDED
ENGINE OIL SYSTEM				EXXON/ESSO 2380
ENGINE OIL TANK				
NET OIL CAPACITY (Fill Quantity)	5.0	4.2	18.9	
SUMP VOLUME	0.5	0.4	1.9	
EXPANSION VOLUME	0.5	0.4	1.9	
TOTAL TANK VOLUME	5.5	6.6	20.8	
USABLE ENGINE OIL	4.5	3.7	17.0	
PNEUMATIC STARTERS				
R GARRETT	19.30 Fluid ounces	16.07 Fluid ounces	570 cc	
R BENDIX	8.45 Fluid ounces	7.04 Fluid ounces	250 cc	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 1)

	SYSTEM/ COMPONENT	QUANTITY US GALLONS	IMPERIAL GALLONS	METRIC LITERS	SPECIFICATION RECOMMENDED
	CONSTANT SPEED DRIVE (CSD) TRANSMISSION OIL SYSTEM (Approximate Fill Quantity)	1.50 (12 pints)	1.25	5.68	Sundstrand Specification MS 02.40 (as revised).
	AIR CONDITIONING UNIT AIR CYCLE MACHINE	10.15 ounces	10.15 ounces	300 cc	AiResearch Service Information Letter No. 100-300 (as revised).
R R R	AUXILIARY POWER UNIT (APU)				AiResearch Specification (as revised).
R	APU OIL TANK	1.0	.83	3.79	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 2)

TOC

GENERAL - SERVICING

SYSTEM/ COMPONENT	QUANTITY US GALLONS	QUANTITY IMPERIAL GALLONS	QUANTITY METRIC LITERS	SPECIFICATION RECOMMENDED
ENGINE OIL SYSTEM				EXXON/ESSO 2380
ENGINE OIL TANK				
NET OIL CAPACITY (Fill Quantity)	5.0	4.2	18.9	
SUMP VOLUME	0.5	0.4	1.9	
EXPANSION VOLUME	0.5	0.4	1.9	
TOTAL TANK VOLUME	5.5	6.6	20.8	
USABLE ENGINE OIL	4.5	3.7	17.0	
PNEUMATIC STARTERS				
R R GARRETT	19.30 Fluid ounces	16.07 Fluid ounces	570 cc	
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Replenishment Chart -- Oil Systems
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CONSTANT SPEED DRIVE (CSD) TRANSMISSION OIL SYSTEM (Approximate Fill Quantity)	1.50 (12 pints)	1.25	5.68	Sundstrand Specification MS 02.40 (as revised).
AIR CONDITIONING UNIT AIR CYCLE MACHINE	10.15 ounces	10.15 ounces	300 cc	AiResearch Service Information Letter No. 100-300 (as revised).
R AUXILIARY POWER R UNIT (APU) R				AiResearch Specification (as revised).
R APU OIL TANK	1.0	.83	3.79	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 2)

TOC

GENERAL - SERVICING

SYSTEM/ COMPONENT	QUANTITY US GALLONS	QUANTITY IMPERIAL GALLONS	QUANTITY METRIC LITERS	SPECIFICATION RECOMMENDED
ENGINE OIL SYSTEM ENGINE OIL TANK				GE Specification D50TF1, Class A or Class B per MIL-L-7808G, or MIL-L-23699B
NET OIL CAPACITY (Fill Quantity)	5.0	4.2	18.9	
SUMP VOLUME	0.5	0.4	1.9	
EXPANSION VOLUME	0.5	0.4	1.9	
TOTAL TANK VOLUME	5.5	6.6	20.8	
USABLE ENGINE OIL	4.5	3.7	17.0	
PNEUMATIC STARTERS				
R GARRETT R	19.30 Fluid ounces	16.07 Fluid ounces	570 cc	
R BENDIX R	8.45 Fluid ounces	7.04 Fluid ounces	250 cc	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 1)

	SYSTEM/ COMPONENT	QUANTITY US GALLONS	IMPERIAL GALLONS	METRIC LITERS	SPECIFICATION RECOMMENDED
	CONSTANT SPEED DRIVE (CSD) TRANSMISSION OIL SYSTEM (Approximate Fill Quantity)	1.50 (12 pints)	1.25	5.68	Sundstrand Specification MS 02.40 (as revised).
	AIR CONDITIONING UNIT AIR CYCLE MACHINE	10.15 ounces	10.15 ounces	300 CC	AiResearch Service Information Letter No. 100-300 (as revised).
R R R	AUXILIARY POWER UNIT (APU)				AiResearch Specification (as revised).
R	APU OIL TANK	1.0	.83	3.79	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 2)

TOC

GENERAL -- SERVICING

SYSTEM/ COMPONENT	QUANTITY US GALLONS	QUANTITY IMPERIAL GALLONS	QUANTITY METRIC LITERS	SPECIFICATION RECOMMENDED
ENGINE OIL SYSTEM				Mobil Type 2
ENGINE OIL TANK				
NET OIL CAPACITY (Fill Quantity)	5.0	4.2	18.9	
SUMP VOLUME	0.5	0.4	1.9	
EXPANSION VOLUME	0.5	0.4	1.9	
TOTAL TANK VOLUME	5.5	6.6	20.8	
USABLE ENGINE OIL	4.5	3.7	17.0	
PNEUMATIC STARTERS				
R GARRETT	19.30 Fluid ounces	16.07 Fluid ounces	570 cc	
R BENDIX	8.45 Fluid ounces	7.04 Fluid ounces	250 cc	

Replenishment Chart -- Oil Systems
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	SYSTEM/ COMPONENT	QUANTITY US GALLONS	IMPERIAL GALLONS	METRIC LITERS	SPECIFICATION RECOMMENDED
	CONSTANT SPEED DRIVE (CSD) TRANSMISSION OIL SYSTEM (Approximate Fill Quantity)	1.50 (12 pints)	1.25	5.68	Sundstrand Specification MS 02.40 (as revised).
	AIR CONDITIONING UNIT AIR CYCLE MACHINE	10.15 ounces	10.15 ounces	300 CC	AiResearch Service Information Letter No. 100-300 (as revised).
R R R	AUXILIARY POWER UNIT (APU)				AiResearch Specification (as revised).
R	APU OIL TANK	1.0	.83	3.79	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 2)

TOC

SYSTEM/ COMPONENT	QUANTITY US GALLONS	QUANTITY IMPERIAL GALLONS	QUANTITY METRIC LITERS	SPECIFICATION RECOMMENDED
ENGINE OIL SYSTEM				GE Specification D50TF1, Class A or Class B, per French Specification AIR 3514
ENGINE OIL TANK				
NET OIL CAPACITY (Fill Quantity)	5.0	4.2	18.9	
SUMP VOLUME	0.5	0.4	1.9	
EXPANSION VOLUME	0.5	0.4	1.9	
TOTAL TANK VOLUME	5.5	6.6	20.8	
USABLE ENGINE OIL	4.5	3.7	17.0	
PNEUMATIC STARTERS				
R GARRETT R	19.30 Fluid ounces	16.07 Fluid ounces	570 cc	
R BENDIX R	8.45 Fluid ounces	7.04 Fluid ounces	250 cc	

Replenishment Chart -- Oil Systems
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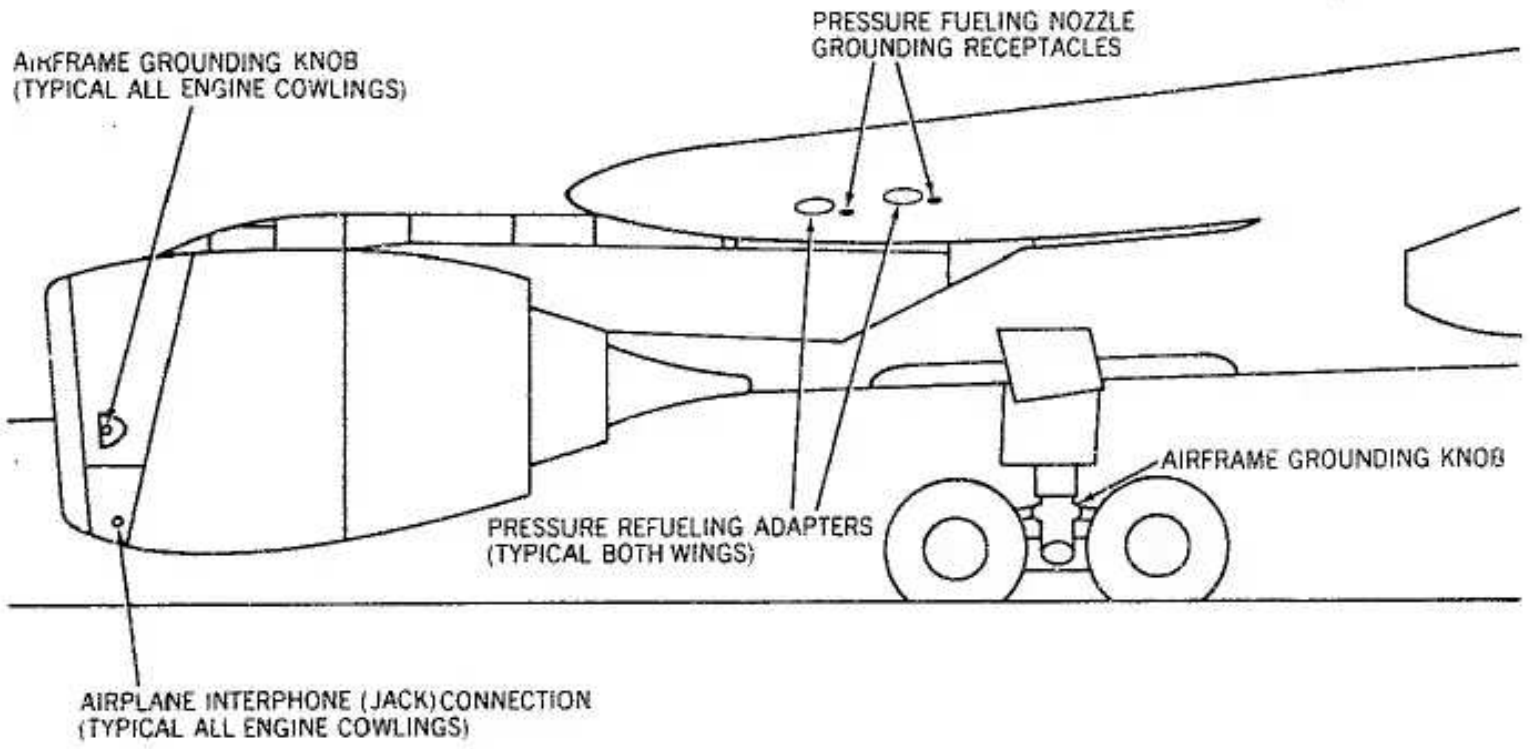
	SYSTEM/ COMPONENT	QUANTITY US GALLONS	IMPERIAL GALLONS	METRIC LITERS	SPECIFICATION RECOMMENDED
	CONSTANT SPEED DRIVE (CSD) TRANSMISSION OIL SYSTEM (Approximate Fill Quantity)	1.50 (12 pints)	1.25	5.68	Sundstrand Specification MS 02.40 (as revised).
	AIR CONDITIONING UNIT AIR CYCLE MACHINE	10.15 ounces	10.15 ounces	300 CC	AiResearch Service Information Letter No. 100-300 (as revised).
R R R	AUXILIARY POWER UNIT (APU)				AiResearch Specification (as revised).
R	APU OIL TANK	1.0	.83	3.79	

Replenishment Chart -- Oil Systems
Figure 301 (Sheet 2)

PRESSURE REFUELING - SERVICING

1. General

A. The procedure for pressure refueling is the same as outlined in the DC-8-60 Series Maintenance Manual. The only difference is location of the interphone jacks, which are now located below the ground connection on the left side of the engine nose cow..

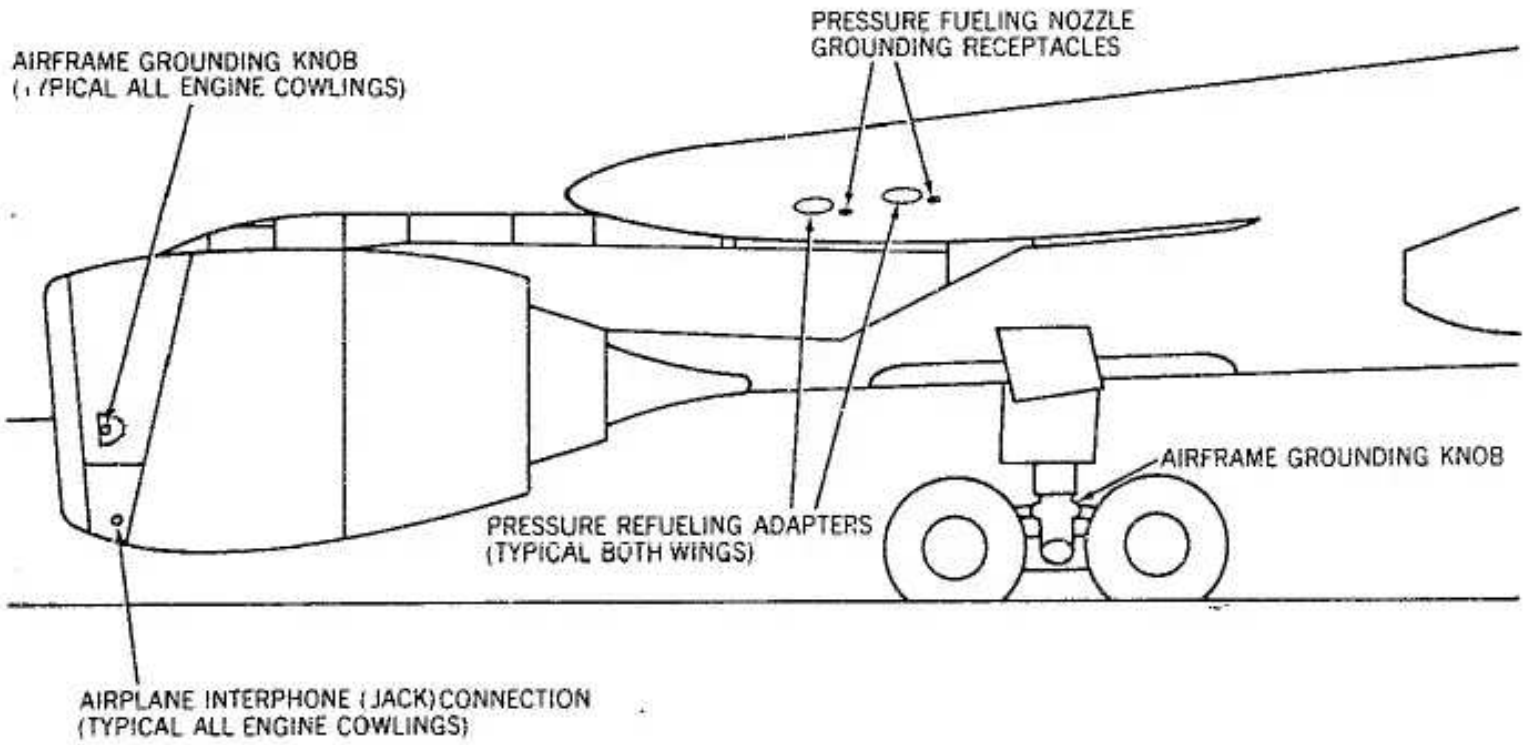


Pressure Refueling - Servicing
Figure 301

GRAVITY REFUELING - SERVICING

1. General

A. The procedure for gravity refueling is the same as outlined in the DC-8-60 Maintenance Manual. The only difference is location of the interphone jacks, which are now located below the ground connection on the left side of the engine nose cowl.

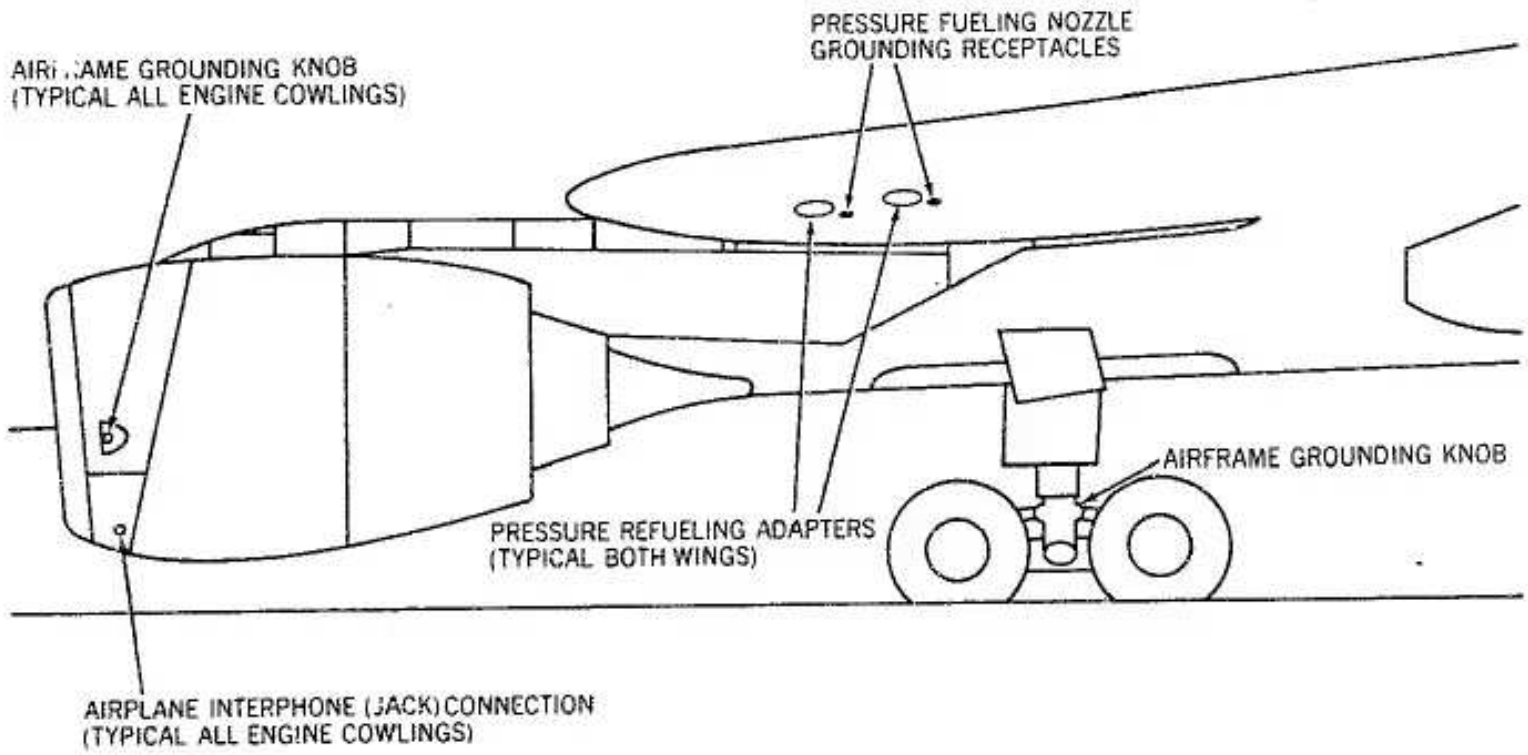


Gravity Refueling - Servicing
Figure 301

DEFUELING - SERVICING

1. General

   A. The procedure for defueling is the same as outlined in the DC-8-60 Series Maintenance Manual. The only difference is location of the interphone jacks which are now located below the ground connection on the left side of the engine nose cowl.



Defueling - Servicing
Figure 301

DOUGLAS AIRCRAFT CO., INC.

DC-8 SEVENTY SERIES

MAINTENANCE MANUAL

ENGINE OIL SYSTEM - SERVICING

1. General

A. Procedures for servicing all engine oil system tanks are identical.

B. The engine oil tank fill port and drain provisions are located on the forward upper left side of the engines. The oil tank gravity fill port is accessible through access doors 182, 282, 382, and 482. (see Chapter 6). The oil tank drain valves are accessible through left fan cowl doors 181, 281, 381, and 481.

C. The recommended approved oil specifications and oil tank capacity are shown on the oil systems replenishment chart (12-02, General Servicing).

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items.

Item	Name	Number	Manufacturer	Use
A	Oil tank drain adapter	856A2502G01 (Europe Version) 856A2502G06 (U.S. Version)		Drain engine oil tank
B	Drain oil container	6 US Gallons	Commercially available	Receive drain oil

3. Service Engine Oil System

WARNING: JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES ON WHICH JET ENGINE OIL HAS BEEN SPILLED, SHOULD BE CLEANED IMMEDIATELY.

INADVERTENT OPERATION OF ENGINE THRUST REVERSERS COULD CAUSE SERIOUS INJURY TO PERSONNEL WORKING IN ENGINE AREAS.

HOT OIL GUSHING FROM TANK COULD CAUSE SEVERE BURNS. ALLOW TANK PRESSURE TO BLEED OFF. WAIT AT LEAST 5 MINUTES AFTER ENGINE SHUTODWN BEFORE REMOVING OIL TANK CAP.

CAUTION: USE ONLY RECOMMENDED APPROVED JET ENGINE OIL WHEN SERVICING ENGINE OIL SYSTEMS. SEE OIL SYSTEMS REPLENISHMENT CHART (12-02, GENERAL SERVICING) FOR APPROVED OIL.

IF OIL SYSTEM IS INADVERTENTLY SERVICED WITH FLUID DISSIMILAR TO SYNTHETIC OIL, SUCH AS MIL-L-6081 OR HYDRAULIC FLUID, ENGINE SHOULD NOT BE OPERATED UNTIL EFFECTS ON ENGINE HAVE BEEN ASSESSED.

ENSURE EXTREME CLEANLINESS WHEN SERVICING ENGINE OIL SYSTEM. OIL SCUPPER MUST BE CLEAN TO PREVENT DIRT FROM BEING WASHED INTO TANK DURING OIL FILLING.

SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1*	Engine oil tank	OJE	Can or dispenser	4

* See engine oil system servicing procedures.

R OJE oil - Jet engine (CFM56 SB 79-1, as revised)

Frequency interval recommended: On condition - Change oil in accordance with Pratt & Whitney recommendation. (See
R CFM 56 Maintenance Manual, Chapter
R 12-10-00.)

A. Check Engine Oil Tank Oil Level

(1) Check engine oil tank oil level after flight or engine run-up while oil remaining in tank is still hot and within 30 minutes following engine shutdown. Due to thermal expansion, a change in oil temperature of 60°C allows a variation in oil volume of appoximately 0.8 quart (0,77 liter). Replenishment when oil in tank is cold results in overflow during engine operation.

WARNING: HOT OIL GUSHING FROM TANK COULD CAUSE SEVERE BURNS. ALLOW TANK PRESSURE TO BLEED OFF. WAIT AT LEAST 5 MINUTES AFTER ENGINE SHUTDOWN BEFORE REMOVING OIL TANK CAP.

R (1a) Using clean, lint-free cloth or equivalent, clean oil tank scupper
R before removing fill cap.

R (2) Remove oil tank fill cap (see Figure 302).

R (3) Check reading on tank dipstick (See Figure 302A).

(4) Install dipstick and fill cap.

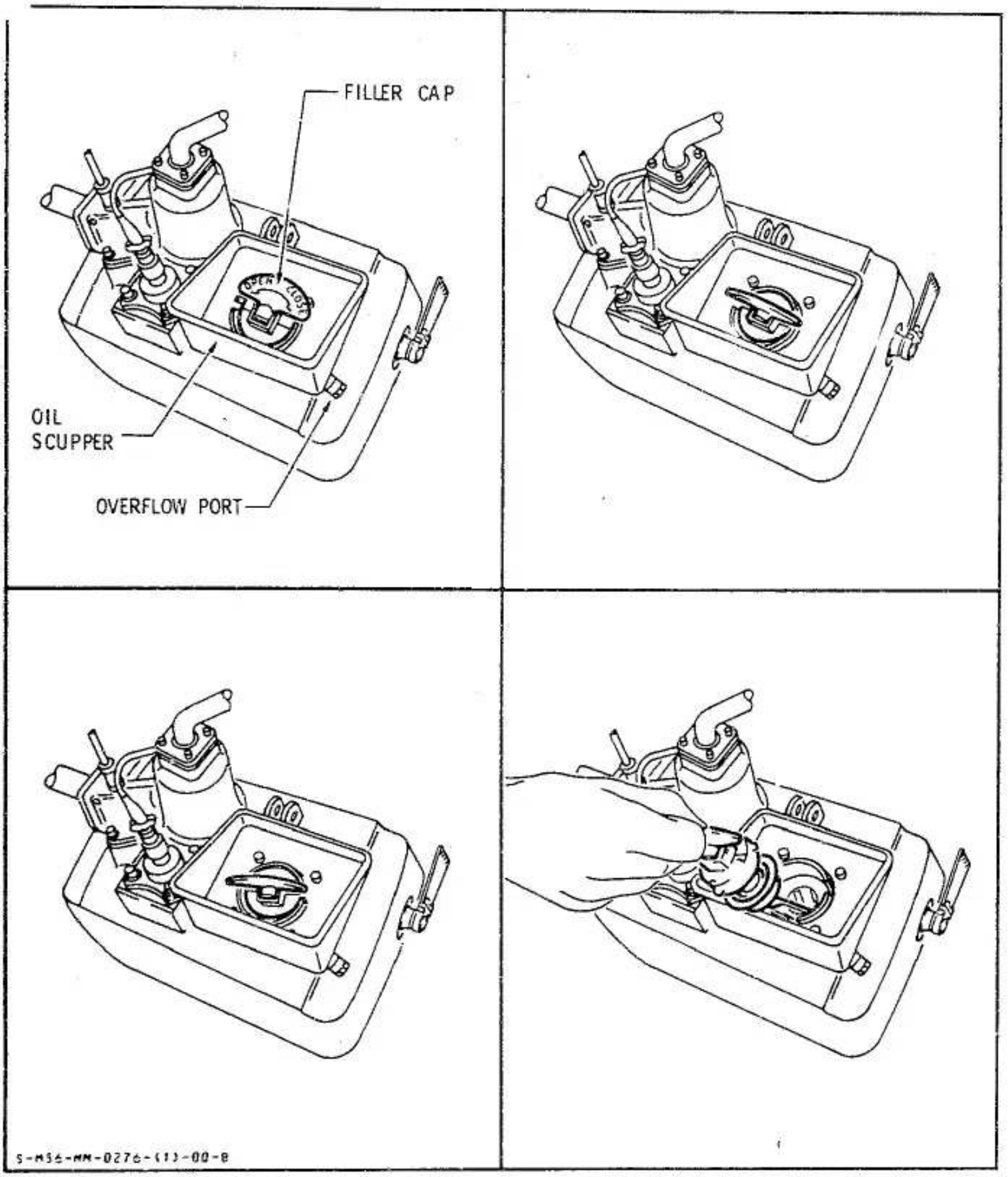
CAUTION: MAKE CERTAIN FILL CAP IS SECURE.

B. Add Oil

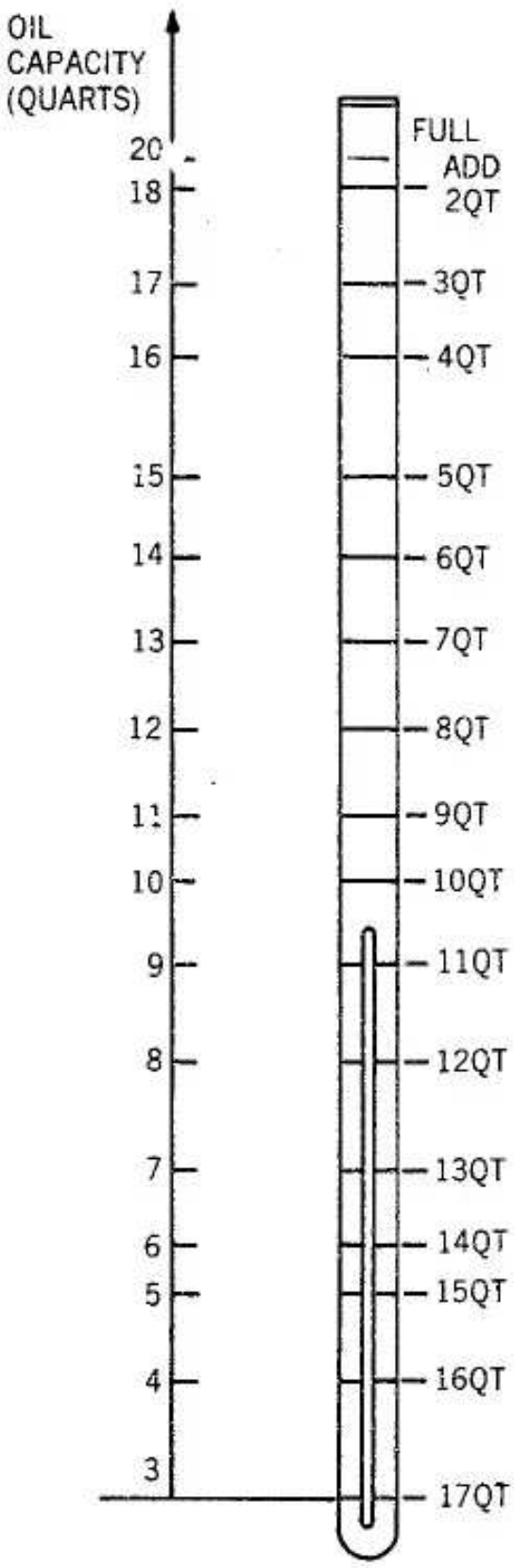
CAUTION: DO NOT OVERFILL ENGINE OIL TANK. ENSURE THAT PROPER OIL LEVEL CHECK IS MADE BEFORE ADDING OIL.

(1) Remove oil tank fill cap.

WARNING: HOT OIL GUSHING FROM TANK COULD CAUSE SEVERE BURNS. ALLOW TANK PRESSURE TO BLEED OFF. WAIT AT LEAST 5 MINUTES AFTER ENGINE SHUTDOWN BEFORE REMOVING OIL TANK CAP.



Removal of Cap for Oil Tank Filling
Figure 302



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HA2-8888

Oil Tank Dipstick Graduations
Figure 302A

(2) Fill oil tank to desired level.

CAUTION: IF OIL SYSTEM IS INADVERTENTLY SERVICED WITH FLUID DISSIMILAR TO SYNTHETIC OIL, SUCH AS MIL-L-6081 OR HYDRAULIC FLUID, ENGINE SHOULD NOT BE OPERATED UNTIL EFFECTS ON ENGINE HAVE BEEN ASSESSED.

NOTE: It is not desirable to mix different brands or types of oil. When changing from one brand of oil to another, drain the oil system as completely as possible and fill tank with new brand or type of oil.

NOTE: Oil replenishment is to be performed after flight or engine run-up while oil remaining in the tank is still hot and within 30 minutes following engine shutdown. Due to thermal expansion, a change in oil temperature of 60°C allows a variation in oil volume of approximately 0.8 quart (0,77 liter). Replenishment when oil in tank is cold results in overflow during engine operation.

R NOTE: Add oil to lesser number of quarts low. (Example: Dipstick
R shows between 4 QT ADD and 5 QT ADD; only add 4 quarts.)

(3) Install fill cap.

CAUTION: MAKE CERTAIN FILL CAP IS SECURE.

C. Drain Engine Oil Tank

(1) Operate engine at 75 percent N_2 RPM for 1 minute immediately before draining oil tank.

R WARNING: DUE TO THERMAL EXPANSION, A CHANGE IN OIL TEMPERATURE OF 60°C ALLOWS A VARIATION IN OIL VOLUME OF APPROXIMATELY 0.8 QUART (0.77 LITER). HOT OIL GUSHING FROM TANK COULD CAUSE SEVERE BURNS. WAIT AT LEAST 5 MINUTES AFTER ENGINE SHUTDOWN BEFORE REMOVING OIL TANK CAP. ALLOW TANK PRESSURE TO BLEED OFF.

R WARNING: MAKE CERTAIN THAT TAP OF OIL DRAIN ADAPTER IS CLOSED BEFORE
R INSTALLING ADAPTER ON OIL TANK. HOT OIL GUSHING FROM TANK
R COULD CAUSE BURNS.

NOTE: Engine operation is not required if oil tank is drained within 30 minutes after engine shutdown. Engine must be operated to return a maximum amount of oil to the oil tank before draining tank.

(2) Tag throttle/thrust reverser lever, and open and tag following circuit breakers.

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Thrust reverser hyd valve	Dc bus 4
Reverse thrust	Dc bus 1 or 4
Eng oil quantity	Dc bus 1 or 4

(3) Remove oil tank fill cap.

(4) Remove magnetic plug from tank. Remove O-ring from groove and discard.

(5) Connect oil drain adapter, 856A2502, to a drain tube running to a can
R of 6 US gal. (23 liters) capacity. Push adapter into oil draining
R port and turn to lock. See figure 303.

R (6) Drain oil tank by opening tap. After draining, fully close tap and
R disengage adapter.

R (6a) Check that self-sealing drain plug seals properly, without any leakage.

(7) Clean magnetic plug groove, lightly lubricate new O-ring with engine oil, and install O-ring in magnetic plug groove.

CAUTION: FAILURE TO INSTALL O-RING ON MAGNETIC PLUG CAN RESULT IN EXCESSIVE OIL LOSS DURING ENGINE OPERATION, WITH POSSIBLE ENGINE FAILURE.

(8) Install magnetic plug in tank drain plug.

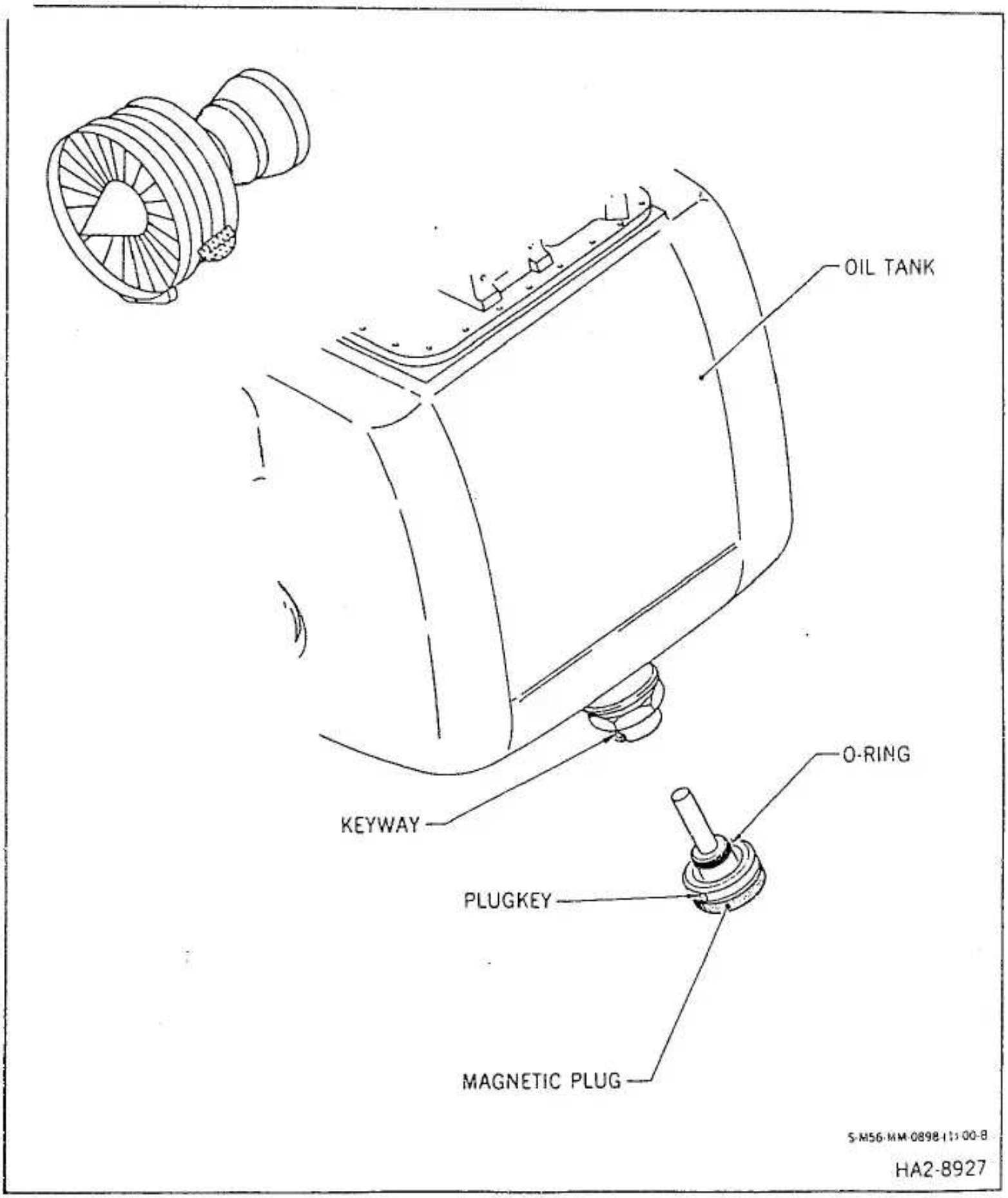
CAUTION: KEEP MAGNETIC PLUG ALIGNED TO PREVENT O-RING INTERFERENCE WITH SELF-SEALING DRAIN PLUG.

D. Fill Engine Oil Tank

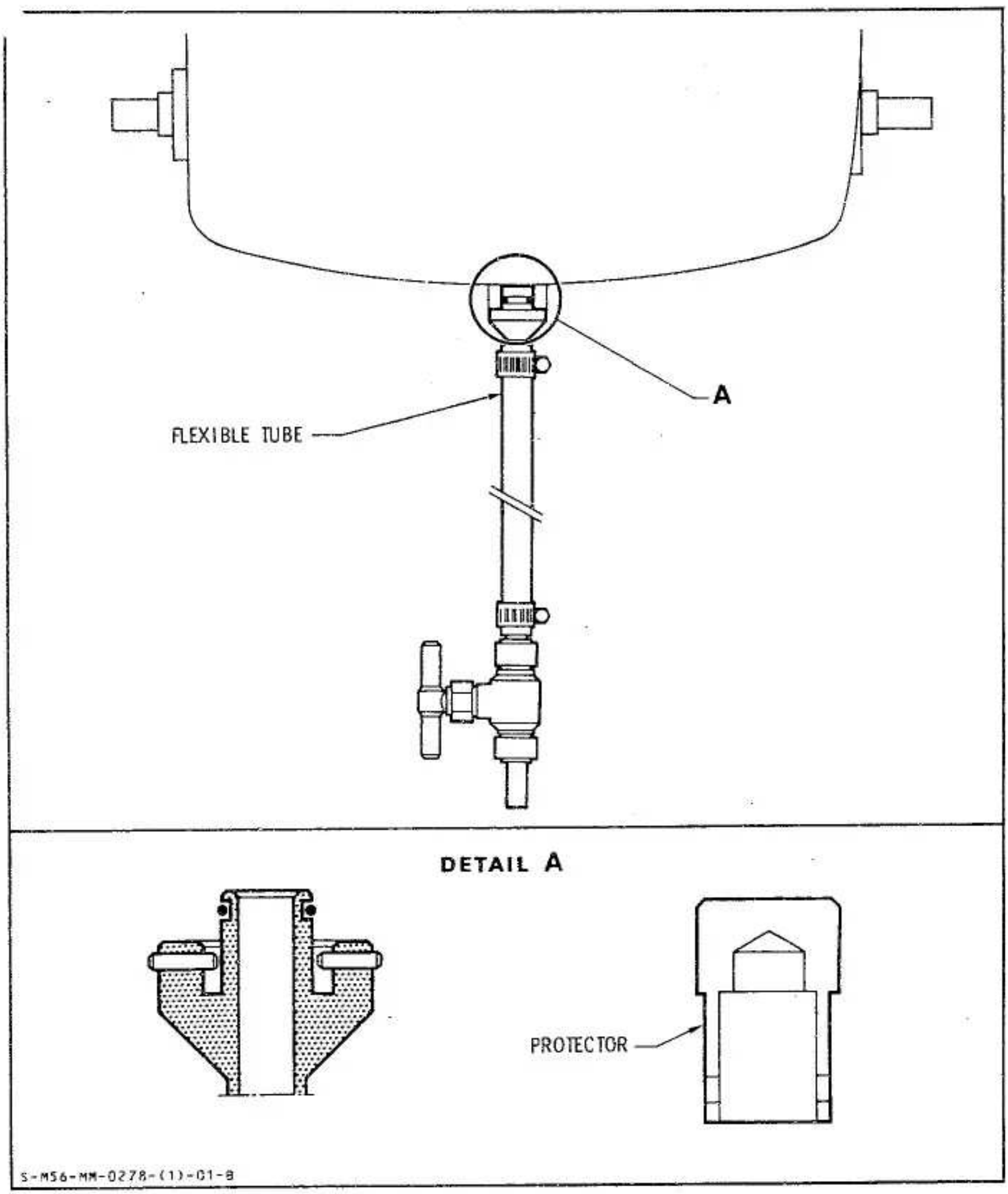
(1) Make certain throttle/thrust reverser lever is tagged and following circuit breakers are open:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Thrust reverser hyd valve	Dc bus 4
Reverse thrust	Dc bus 1 or 4
Eng oil quantity	Dc bus 1 or 4



Oil Tank Magnetic Plug - Removal/Installation
Figure 302B



R

(2) Remove oil tank fill cap.

(3) Fill oil tank to desired level.

(4) Install fill cap.

(5) Remove tag from throttle/thrust reverser lever and close following circuit breakers:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Thrust reverser hyd valve	Dc bus 4
Reverse thrust	Dc bus 1 or 4
Eng oil quantity	Dc bus 1 or 4

TOC

R

PNEUMATIC STARTERS (GARRETT) - SERVICING

1. General

A. The pneumatic starter is mounted on the right pad of the transfer gearbox. The starters are interchangeable. Access is gained through the right fan cowl door No. 183. Servicing procedures for engine starters on all engines are identical.

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items:

Item	Name	Number	Manufacturer	Use
A	Container (approxi-mately one US quart)			Catch drained oil

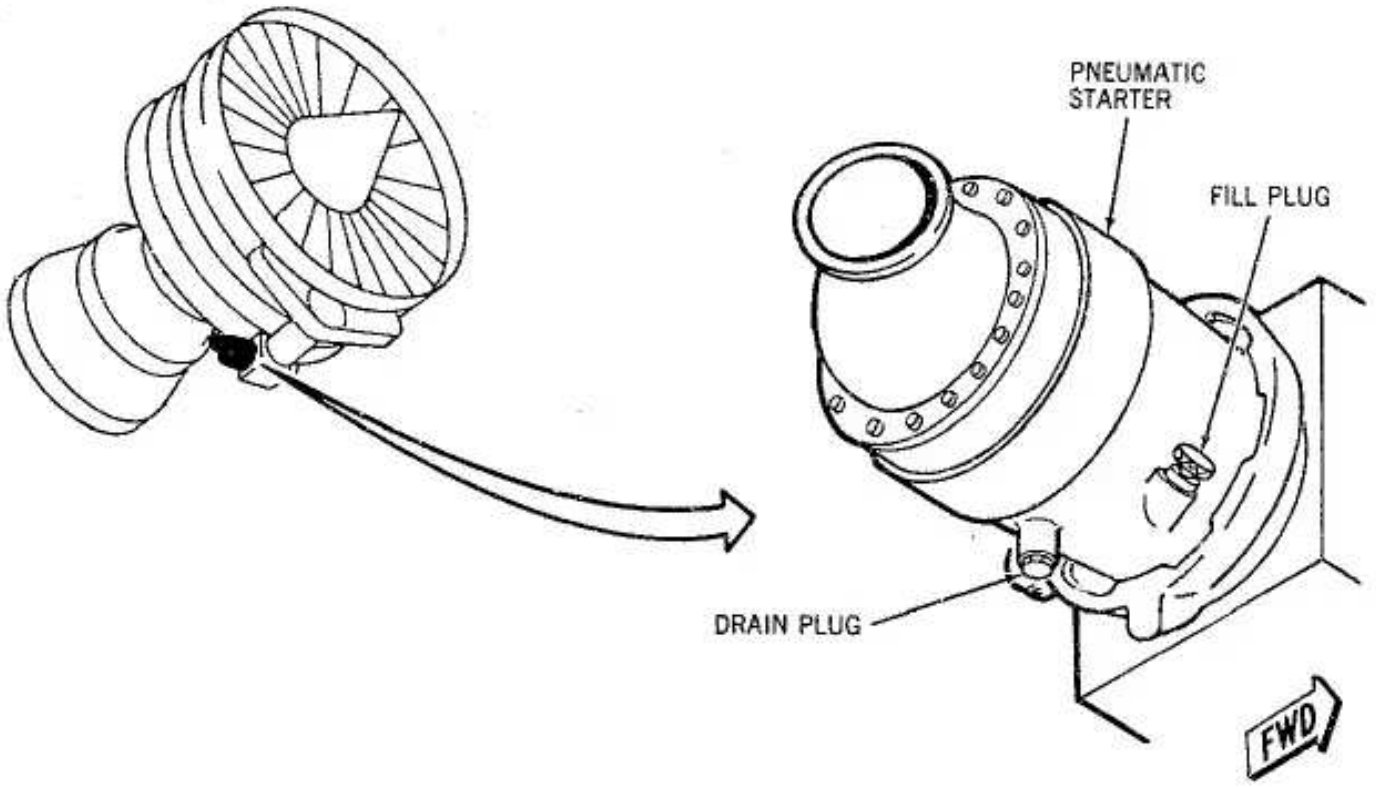
3. Servicing Pneumatic Starters

A. Fill Starter Housing With Oil

(1) Make certain that throttle/thrust reverser lever is tagged and that following circuit breakers are open and tagged:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus



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Pneumatic Starters - Servicing
Figure 301

Circuit Breaker	Section
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

(2) Make certain that thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well, are closed.

(3) Remove fill plug.

(4) Fill starter housing through fill port until oil flows from fill port.

NOTE: Amount of engine oil used will be less than 1 quart (approximately 570 C.C.)

R (5) Install fill port plug. Tighten plug to torque of 65 to 85 inch-pounds, and safety with lockwire.

(6) Remove tag from throttle/thrust reverser lever, and remo e tags and close following circuit breakers:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

TOC

(7) Open thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well. Safety valves in open position with lockwire.

WARNING: MAKE CERTAIN FLIGHT COMPARTMENT THRUST REVERSER LEVER POSITION CORRESPONDS WITH THRUST REVERSER TRANSLATING COWL POSITION AND THAT ALL PERSONNEL AND EQUIPMENT ARE WELL CLEAR OF THRUST REVERSERS ON ALL FOUR ENGINES BEFORE OPENING MANUAL SHUTOFF VALVES. INADVERTENT THRUST REVERSER OPERATION COULD RESULT IN DEATH OR SERIOUS INJURY TO PERSONNEL.

B. Drain Oil From Starter Housing

(1) Tag throttle/thrust reverser lever and open and tag following circuit breakers:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

(2) Close thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well.

(3) Remove fill plug.

(4) Remove drain plug and drain oil into container.

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(5) Carefully examine oil removed from starter for metal particles.

NOTE: Fine metal particles indicate normal wear. Large pieces of metal indicate internal damage.

(6) Clean drain plug and check that metal seals are in good condition. If not, discard and install new seals.

(7) Install drain plug, tighten plug to torque of 65 to 85 inch-pounds and safety with lockwire.

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DOUGLAS AIRCRAFT CO., INC.

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PNEUMATIC STARTERS (BENDIX) - SERVICING

1. General

A. The pneumatic starter is mounted on the right pad of the transfer gearbox. The starters are interchangeable. Access is gained through the right fan cowl door No. 183. Servici g procedures for engine starters on all engines are identical.

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items:

Item	Name	Number	Manufacturer	Use
A	Container (approxi-mately one US quart)			Catch drained oil

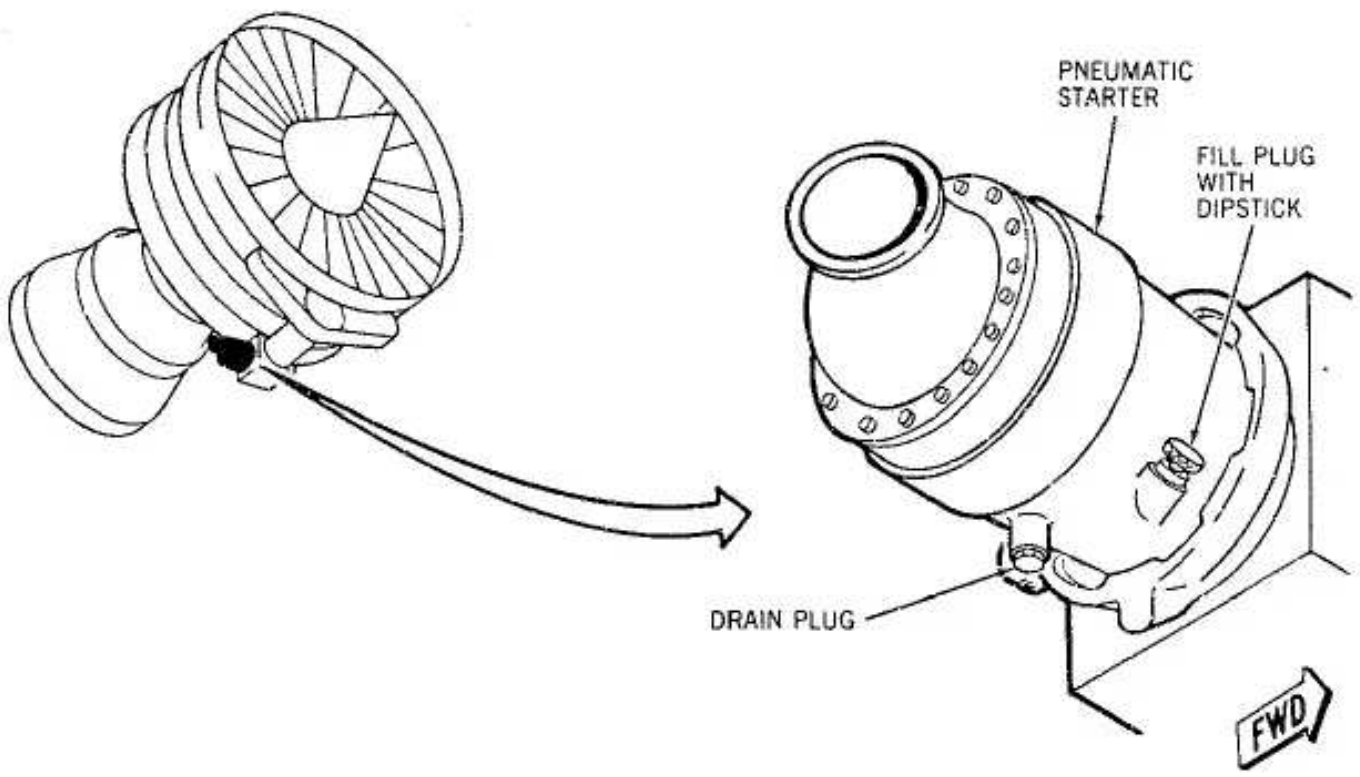
3. Servicing Pneumatic Starters

A. Fill Starter Housing With Oil

(1) Make certain that throttle/thrust reverser lever is tagged and that following circuit breakers are open and tagged:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus



Pneumatic Starters - Servicing
Figure 301

Circuit Breaker	Section
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

(2) Make certain that thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well, are closed.

(3) Remove fill plug.

(4) With starter installed, fill starter housing through fill port. Use dipstick to check that oil level is within range.

CAUTION: DO NOT OVERFILL STARTER. OVERFILLING WILL PRODUCE STARTER OVERHEATING. IF STARTER IS OVERFILLED, DRAIN EXCESS FROM DRAIN PORT.

NOTE: Amount of engine oil used will be less than 1 quart (approximately 250 C.C.)

(5) Install fill port plug. Tighten plug to torque of 80 to 90 inch-pounds, and safety with lockwire.

(6) Remove tag from throttle/thrust reverser lever, and remove tags and close following circuit breakers:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus

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Circuit Breaker	Section
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

(7) Open thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well. Safety valves in open position with lockwire.

WARNING: MAKE CERTAIN FLIGHT COMPARTMENT THRUST REVERSER LEVER POSITION CORRESPONDS WITH THRUST REVERSER TRANSLATING COWL POSITION AND THAT ALL PERSONNEL AND EQUIPMENT ARE WELL CLEAR OF THRUST REVERSERS ON ALL FOUR ENGINES BEFORE OPENING MANUAL SHUTOFF VALVES. INADVERTENT THRUST REVERSER OPERATION COULD RESULT IN DEATH OR SERIOUS INJURY TO PERSONNEL.

8. Drain Oil From Starter Housing

(1) Tag throttle/thrust reverser lever and open and tag following circuit breakers:

NOTE: Numbering on circuit breaker panel denotes engine position.

Circuit Breaker	Section
Engine ignition	Ac bus 1, 2, 3, or 4
Engine starters	Battery bus
Ignition P.S. control (Engines 2 and 3)	Battery bus
Ignition & tach pwr supply (Engines 2 and 3)	Battery bus
Thrust reverser emer stow	Ac bus 3
Reverse thrust	Dc bus 1 or 4

TOC

(2) Close thrust reverser hydraulic system manual shutoff normal and emergency stow valves, located in left main gear wheel well.

(3) Remove fill plug.

(4) Remove drain plug and drain oil into container.

(5) Carefully examine oil removed from starter for metal particles.

NOTE: Fine metal particles indicate normal wear. Large pieces of metal indicate internal damage.

(6) Clean drain plug and check that metal seals are in good condition. If not, discard and install new seals.

(7) Install drain plug, tighten plug to torque of 80 to 90 inch-pounds and safety with lockwire.

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DOUGLAS AIRCRAFT CO., INC.
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MAINTENANCE MANUAL

CONSTANT SPEED DRIVE (CSD) TRANSMISSION - SERVICING

1. General

A. Procedures for servicing all engine constant speed drive (CSD) transmission cases and spline cavities are identical.

B. The CSD transmissions are located below the engines and are mounted on the forward side of the engine accessory drive case.

C. The output spline cavity serves as an oil reservoir for the generator lubrication system. The generators are self lubricated and do not require lubrication servicing other than maintaining an adequate oil supply in the output spline cavity.

D. The CSD transmission case and spline cavity capacities, together with the recommended approved oil specifications, are shown on the oil systems replenishment chart (12-02, General Servicing). For oil change procedure, see Chapter 24.

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items.

Item	Name	Number	Manufacturer	Use
A	Pressure service cart or handpump (25 to 30 psi pressure capacity)		Commercially available	Pressure fill CSD transmission oil system
B	CSD service hose coupling half	390500-6	Aeroquip Corp. Aircraft Div. Jackson, Mich.	Connect service hose to CSD coupling half (390200-6)
C	CSD spline cavity service hose coupling half			Connect service hose to input and output spline cavity pressure-fill coupling half
D	Gasket	MS17413-112	Commercially available	Drain plug seal

TOC

3. Service CSD Transmission Case

WARNING: JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES ON WHICH JET ENGINE OIL HAS BEEN SPILLED SHOULD BE CLEANED IMMEDIATELY.

CAUTION: USE ONLY RECOMMENDED, APPROVED JET ENGINE OIL WHEN SERVICING CSD TRANSMISSION OIL SYSTEM. SEE OIL SYSTEMS REPLENISHMENT CHART (12-02), GENERAL SERVICING) FOR RECOMMENDED APPROVED OIL.

A. Add oil

CAUTION: ENSURE EXTREME CLEANLINESS WHEN SERVICING CSD TRANSMISSION OIL SYSTEM.

(1) Connect service pressure hose coupling to transmission case pressure-fill connector (see Figure 301).

(2) Slowly pressure fill transmission oil system; use 25 to 30 psi oil fill pressure.

(3) Continue to add oil until oil appears in green area of sight gage glass. Stop oil flow wait approximately 3 minutes for oil level to stabilize.

(4) Check oil level gage; add or drain as required to obtain visual indication of oil level within green area on gage.

CAUTION: DO NOT OVERFILL CSD TRANSMISSION OIL SYSTEM. OVERHEATING AND OIL SLUDGING, CAUSED BY OVERFILLING, CAN RESULT IN DRIVE DAMAGE.

(5) If drain plug is removed to adjust oil level, use following procedure to install plug:

(a) Install new gasket (MS17413-112, O-ring) on drain plug.

(b) Install drain plug; tighten plug to torque of 75 to 100 inch-pounds.

(c) Safety plug with lockwire.

(6) Remove service hose.

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4. Service CSD Input and Output Spline Cavities

WARNING JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES ON WHICH JET ENGINE OIL HAS BEEN SPILLED SHOULD BE CLEANED IMMEDIATELY

CAUTION USE ONLY RECOMMENDED. APPROVED JET ENGINE OIL WHEN SERVICING CSD TRANSMISSION INPUT AND OUTPUT SPLINE CAVITIES. SEE OIL SYSTEMS REPLENISHMENT CHART (12-02), GENERAL SERVICING) FOR RECOMMENDED APPROVED OIL.

A. Add Oil (CSD Input Spline Cavity)

(1) Connect service pressure hose coupling to input spline cavity pressure fill connector (see Figure 301).

(2) Using 25 to 40 psi oil fill pressure slowly pressure fill input spline cavity until

(a) On aircraft before incorp. of SB71-80, oil flows from engine drain mast.

(b) On aircraft with SB71-80 incorp. oil flows from uncapped end of Tee fitting on bottom of drain can.

NOTE: The input spline cavity fill-connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap: tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety connector cap with lockwire.

B. Add Oil (CSD Output Spline Cavity)

(1) Connect service pressure hose coupling to output spline cavity pressure fill connector (see figure 301).

(2) Slowly pressure fill output spline cavity until oil starts to flow from the overboard drainline.

NOTE The output spline cavity fill connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap: tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety cap with lockwire.

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4. Service CSD Input and Output Spline Cavities

WARNING: JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES ON WHICH JET ENGINE OIL HAS BEEN SPILLED SHOULD BE CLEANED IMMEDIATELY.

CAUTION: USE ONLY RECOMMENDED, APPROVED JET ENGINE OIL WHEN SERVICING CSD TRANSMISSION INPUT AND OUTPUT SPLINE CAVITIES. SEE OIL SYSTEMS REPLENISHMENT CHART (12-02), GENERAL SERVICING) FOR RECOMMENDED APPROVED OIL.

A. Add Oil (CSD Input Spline Cavity)

(1) Connect service pressure hose coupling to input spline cavity pressure fill connector (see figure 301).

(2) Using 25 to 40 psi oil fill pressure, slowly pressure fill input spline cavity until:

(a) On aircraft before incorp. of SB71-80, oil flows from engine drain mast.

(b) On aircraft with SB71-80 incorp., oil flows from uncapped end of Tee fitting on bottom of drain can.

NOTE: The input spline cavity fill-connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap; tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety connector cap with lockwire.

B. Add Oil (CSD Output Spline Cavity)

(1) Connect service pressure hose coupling to output spline cavity pressure fill connector (see figure 301).

(2) Slowly pressure fill output spline cavity until oil starts to flow from the overboard drainline.

NOTE: The output spline cavity fill connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap; tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety cap with lockwire.

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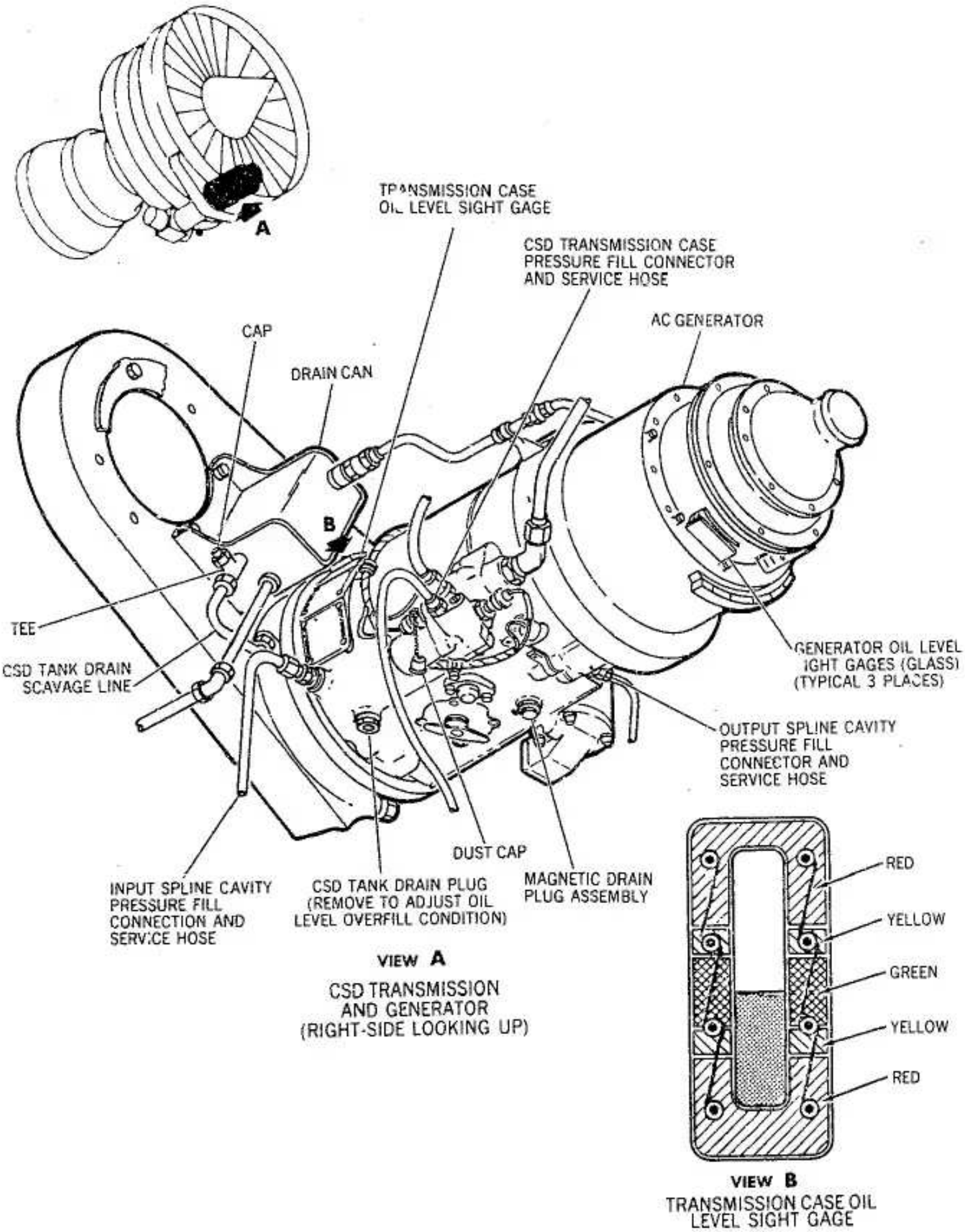

Constant Speed Drive (CDS) Transmission - Servicing
Figure 301

TOC

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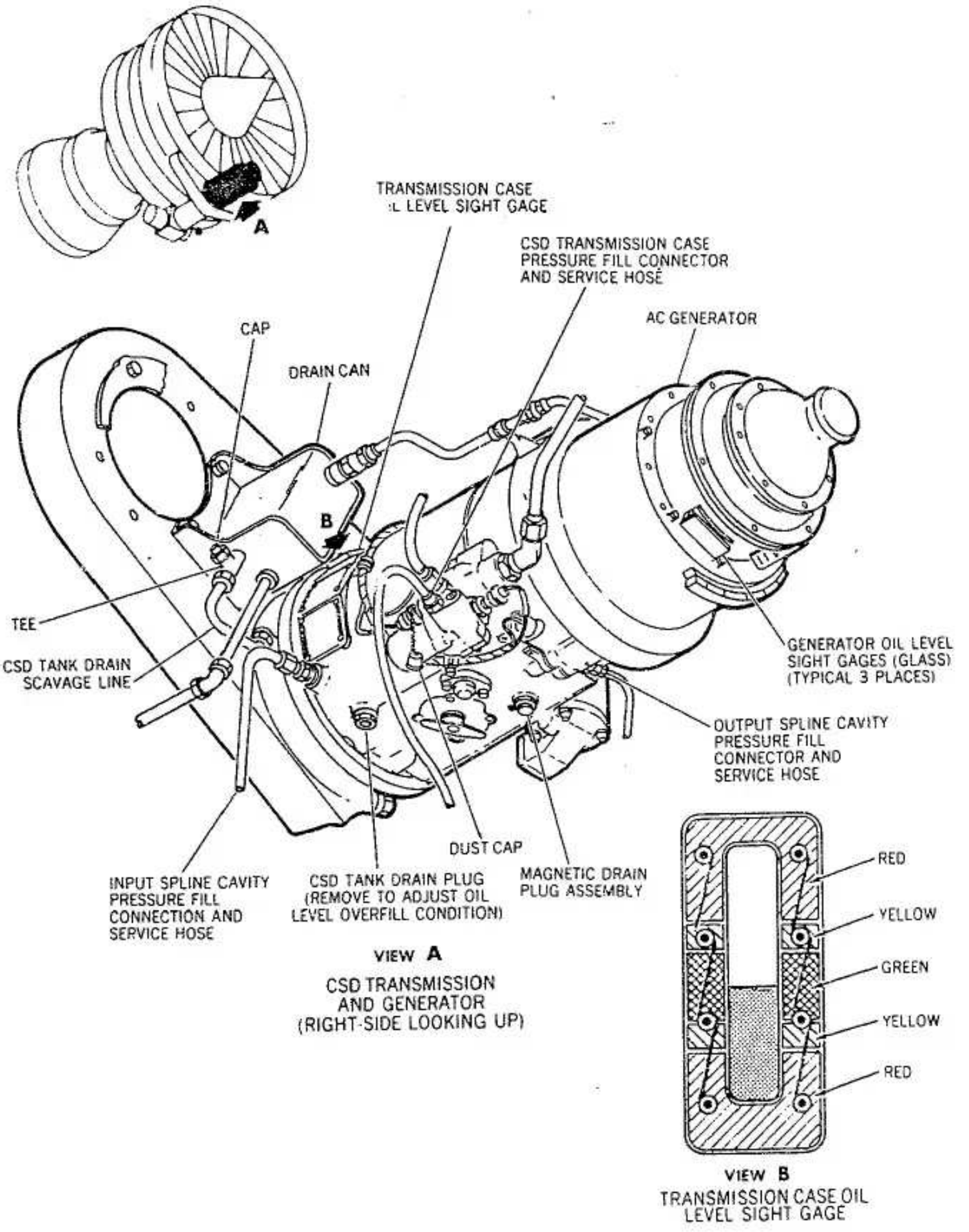

Constant Speed Drive (CSD) Transmission - Servicing
(Aircraft With SB71-80 Incorp.)
Figure 301 (Sheet 1)

TOC

4. Service CSD Input and Output Spline Cavities

WARNING: JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES ON WHICH JET ENGINE OIL HAS BEEN SPILLED SHOULD BE CLEANED IMMEDIATELY.

CAUTION: USE ONLY RECOMMENDED, APPROVED JET ENGINE OIL WHEN SERVICING CSD TRANSMISSION INPUT AND OUTPUT SPLINE CAVITIES. SEE OIL SYSTEMS REPLENISHMENT CHART (12-02), GENERAL SERVICING) FOR RECOMMENDED APPROVED OIL.

A. Add Oil (CSD Input Spline Cavity)

(1) Connect service pressure hose coupling to input spline cavity pressure fill connector (see Figure 301).

R (2) Using 25 to 40 psi oil fill pressure, slowly pressure fill input spline
R cavity until:

R (a) On aircraft before incorp. of SB71-80, oil flows from engine drain
R mast.

R (b) On aircraft with SB71-80 incorp., oil flows from uncapped end of Tee
R fitting on bottom of drain can.

NOTE: The input spline cavity fill-connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap; tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety connector cap with lockwire.

B. Add Oil (CSD Output Spline Cavity)

(1) Connect service pressure hose coupling to output spline cavity pressure fill connector (see figure 301).

(2) Slowly pressure fill output spline cavity until oil starts to flow from the overboard drainline.

NOTE: The output spline cavity fill connector check valve requires an oil pressure of 20 to 25 psi to open.

(3) Remove service hose.

(4) Install connector cap; tighten cap to torque of 25 to 30 inch-pounds.

(5) Safety cap with lockwire.

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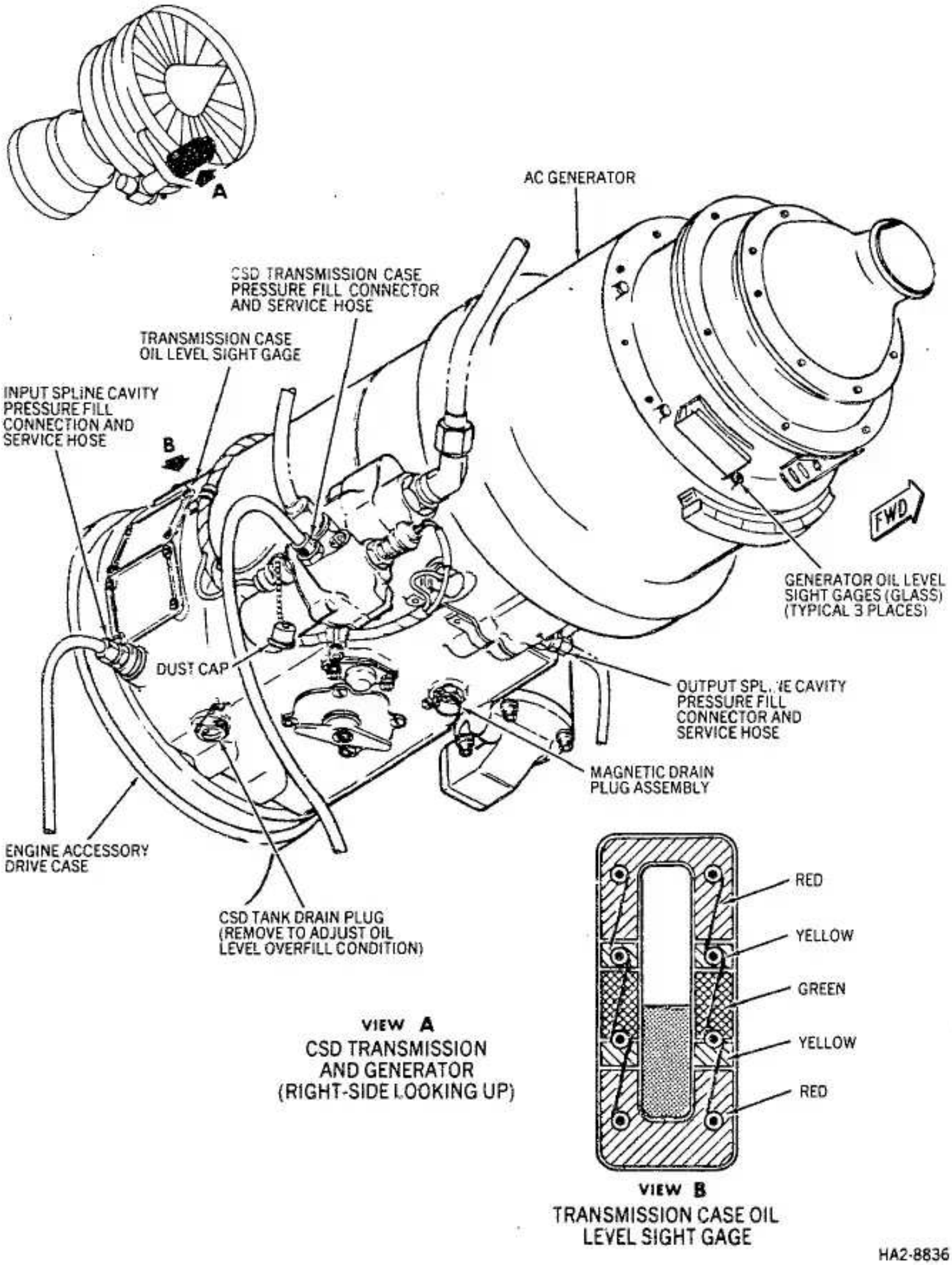

VIEW A
CSD TRANSMISSION AND GENERATOR (RIGHT-SIDE LOOKING UP)

VIEW B
TRANSMISSION CASE OIL LEVEL SIGHT GAGE

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TOC

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MAINTENANCE MANUAL

AIR-CONDITIONING UNIT AIR CYCLE MACHINE - SERVICING

1. General

A. The air-conditioning unit air cycle machines are located on the left and right air conditioning tunnels.

B. The air cycle machine oil sump capacity and specifications are shown in the oil systems replenishment chart (See 12-02).

2. Tools and Equuipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items.

Item	Name	Number	Manufacturer	Use
A	Oil servicing unit or container-filling			Fill air cycle machine
B	Drain pan or container			Remove drained oil
C	Lockwire, .032 corrosion-resistant steel			Secure fill plug and drain plug
D	Scupper drain or funnel with suitable hose attached			Drain air cycle machine
	Packing	S9026D111	Airesearch	Seal fill plug
	Packing	S90260110	Airesearch	Seal drain plug

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3. Service Air Cycle Machine Cooling Turbines

WARNING: JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE.

WARNING: PAINTED SURFACES, ON WHICH JET ENGINE OIL HAS BEEN SPILLED, SHOULD BE CLEANED IMMEDIATELY.

CAUTION: USE ONLY APPROVED JET ENGINE OIL WHEN SERVICING COOLING TURBINES. DO NOT MIX TYPES OR NAME BRAND OILS.

A. Check Turbine Oil Level

R (1) Remove filler plug. Oil level should be maintained at filler opening.

B. Add Oil

R (1) Remove oil filler plug (see Figure 301).

R (2) Fill turbine sump until oil begins to ooze out of filler opening.

NOTE: When necessary to use a different brand of oil than previously used, the oil system should be drained completely before the new oil is added.

R (3) Install oil filler plug with new O-ring. Tighten and safety plug with .032 corrosion-resistant steel lockwire.

C. Drain Oil

R (1) Remove oil filler plug and entire drain plug assembly using outer hex fitting; catch oil in drain pan.

(2) Install drain plug assembly with new O-ring. Tighten and safety plug with .032 corrosion-resistant steel lockwire.

D. Fill Turbine Oil Sump

R (1) Remove oil filler plug (see Figure 301).

R (2) Fill turbine sump with new oil until oil begins to ooze out of filler
R opening.

R (3) Install oil filler plug with new O-ring. Tighten and safety plug with .032 corrison-resistant steel lockwire.

TOC

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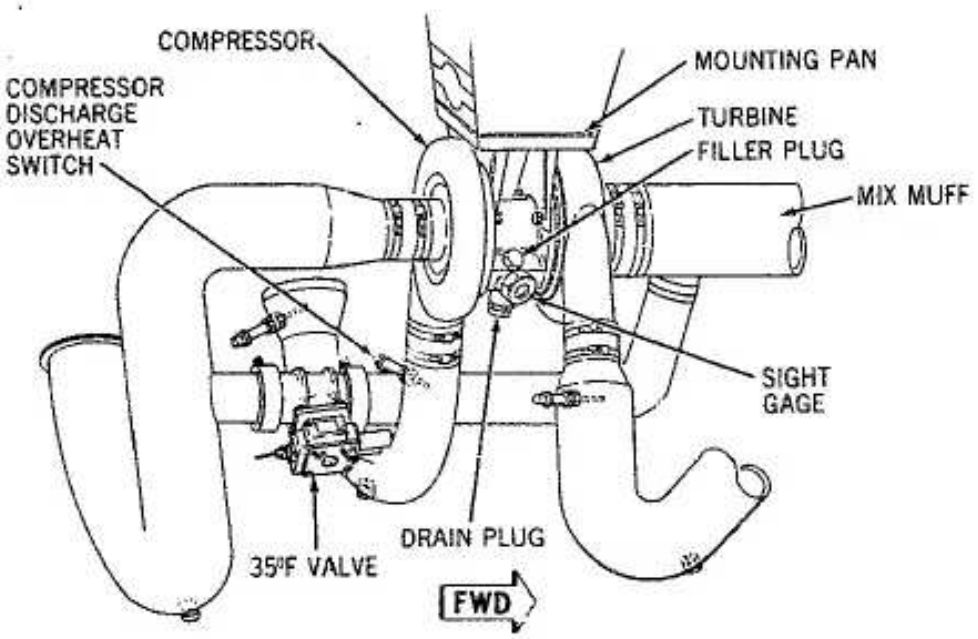
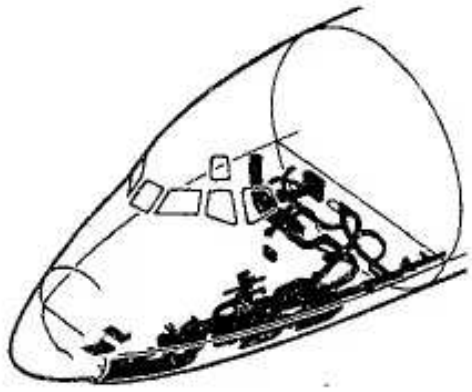
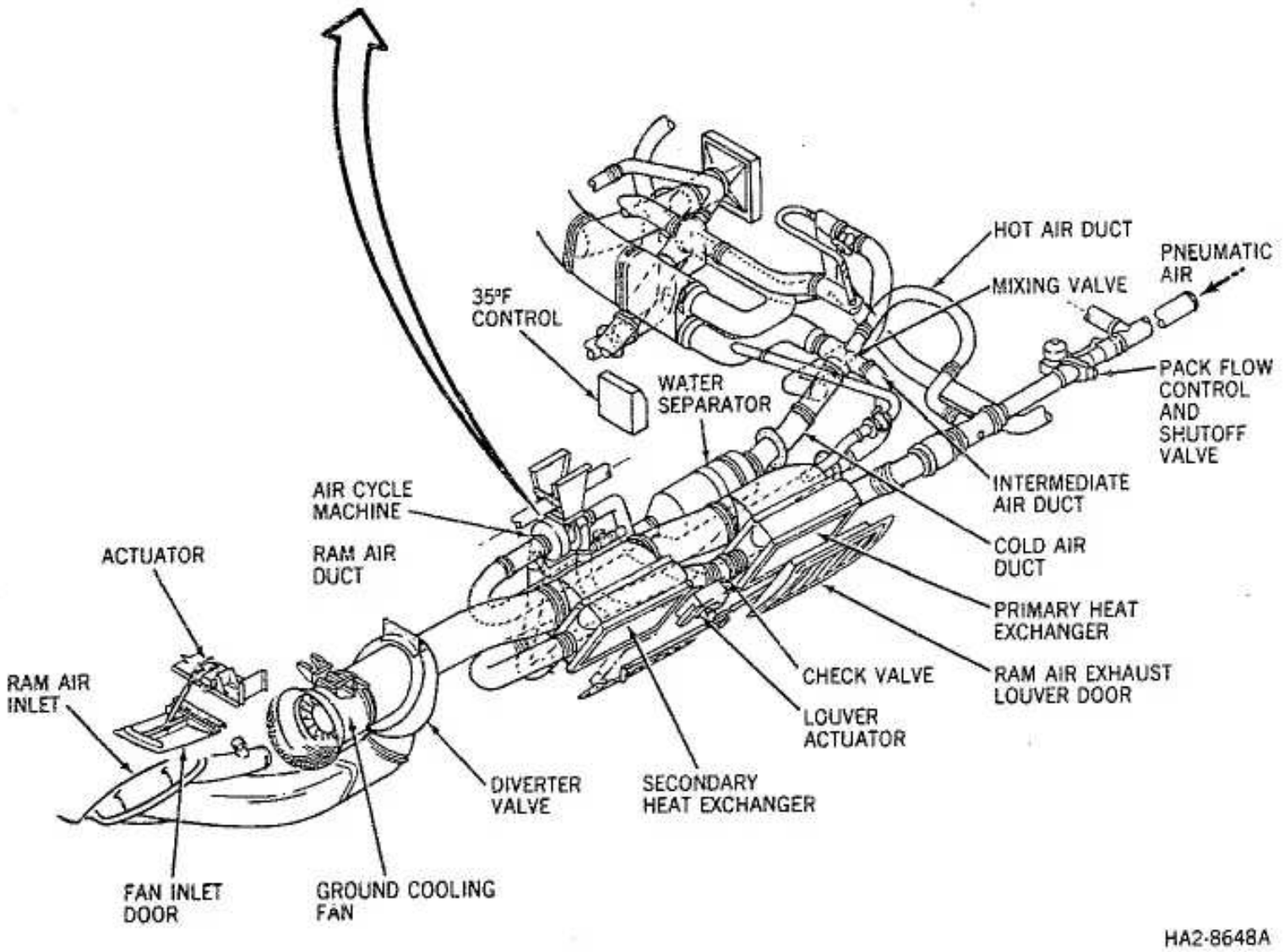


AIR CYCLE MACHINE
VIEW LOOKING OUTBOARD



LEFT SYSTEM SHOWN
RIGHT SYSTEM SIMILAR



Air Conditioning Unit Air Cycle Machine - Servicing
Figure 301

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DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

AUXILIARY POWER UNIT (APU) - SERVICING

1. General

A. The auxiliary power unit (APU) is located in the aft end of the forward cargo compartment. Access to APU oil tank servicing is through the forward cargo compartment aft door.

B. The APU oil tank capacity and approved oil specifications are shown on the oil systems replenishment chart (see 12-02, Servicing).

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items:

Item	Name	Number	Manufacturer	Use
A	Oil servicing unit (pressure-type)		Commerically available	Fill oil tank
B	Drain pan or container	2 US Gallons		Receive drained oil

3. Servicing Auxiliary Power Unit

WARNING: AVOID PHYSICAL CONTACT WITH APU WHEN UNIT IS HOT. JET ENGINE OIL MIGHT CAUSE SEVERE SKIN IRRITATION. WASH SKIN THOROUGHLY AFTER EXPOSURE. PAINTED SURFACES, ON WHICH JET ENGINE OIL HAS BEEN SPILLED, SHOULD BE CLEANED IMMEDIATELY.

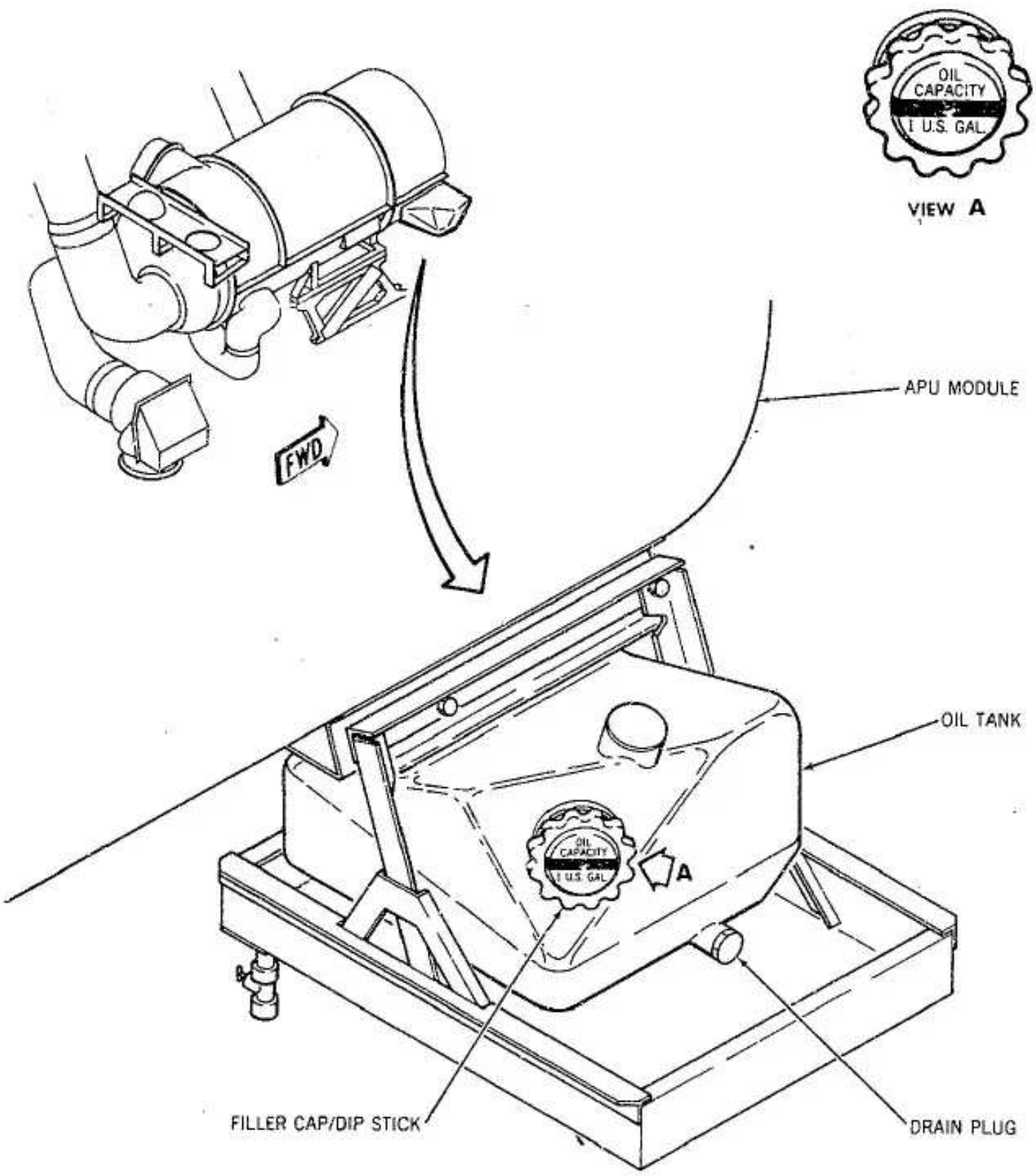
CAUTION: USE ONLY APPROVED JET ENGINE OIL WHEN SERVICING AUXILIARY POWER UNIT. DO NOT MIX TYPES OR NAME BRANDS OF OILS.

A. Fill Oil Tank

(1) Remove oil tank filler cap (Ref. Figure 301).

CAUTION: DO NOT OVERFILL APU OIL TANK.

TOC



NOTE:
LEFT APU SHOWN
RIGHT APU (IF INSTALLED) SIMILAR

HA2-8877

Auxiliary Power Unit (APU) -- Servicing
Figure 301

(2) Fill oil tank with new oil to full mark on dipstick; allow time for oil level to drop as air is vented from tank. Continue to add oil until oil level remains at full mark.

(3) Install filler cap. Line on cap must be horizontal.

CAUTION: MAKE CERTAIN FILLER CAP IS SECURE.

B. Drain Oil Tank

NOTE: Drain oil while engine is still hot from operation. If necessary, start and operate engine until oil reaches steady temperature, then shut down engine and proceed with oil change while oil is hot (see 49-00, Adjustment/Test).

(1) Remove oil tank filler cap.

WARNING: AVOID PHYSICAL CONTACT WITH OIL WHEN APU ENGINE IS HOT. OIL TEMPERATURE CAN EXCEED 93°C (200°F).

(2) Remove drain plug; allow oil to drain completely.

(3) Install drain plug; tighten securely.

(4) If oil tank is not to be filled at this time, install oil tank filler cap to prevent contamination of tank and/or system.

TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

TEMPORARY REVISION 12-8

FILING INSTRUCTIONS: Insert this Temporary Revision adjacent to 12-20-5, CODE 50, Page 303, Servicing.

Retain this Temporary Revision until notified to remove it.

DESCRIPTION AND REASON: This Temporary Revision deletes Chapter 12-20-6, CODE 50, Pages 301 through 305. This section is a duplication of chapter 12-20-2.

EFFECTIVITY: ALL

Remove Pages 301 through 305 of Chapter 12-20-6, CODE 50, dated 1 September 82. These pages are an exact duplication of Pages 301 through 305, Chapter 12-20-2, CODE 51.

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TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

TEMPORARY REVISION 12-7

FILING INSTRUCTIONS: Insert this Temporary Revision adjacent to 12-20-5, CODE 50, Page 303, Servicing.

Retain this Temporary Revision until notified to remove it.

DESCRIPTION AND REASON: This Temporary Revision updates effectivity and adds new section 12-70-1, Oxygen System - Servicing.

EFFECTIVITY: 45810-45813, 45849, 45941, 45945-45947, 45970-45971, 45973-45978, 45983, 45993-45998, 46039-46040, 46064-46066, 46099

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TEMPORARY REVISION

OXYGEN SYSTEM - SERVICING

1. General

A. On airplanes 45810-45813, 45849, 45941, 45945-45947, 45970-45971, 45973-45978, 45993-45998, 46039-46040, 46064-46066, servicing of the oxygen system is through a service panel on the left forward fuselage.

B. On airplanes 45983 and 46099 servicing of the oxygen system is restricted to the removal of empty or insufficiently charged crew, courier cylinders and the installation of fully charged cylinders. Access to oxygen cylinders is through forward cargo door lower aft cargo compartment.

C. Servicing of portable oxygen cylinders is restricted to removing insufficiently charged cylinders and installation of fully charged cylinders. One cylinder is located at the flight engineer station, and one located inside lavatory.

2. Tools and Equipment Required

NOTE: Equivalent substitutes may be used instead of the following listed items:

Item	Name	Number	Manufacturer	Use
A	Oxygen service unit		Commercially available	Recharge oxygen
B	Bubble fluid	MIL-L-25567	Commercially available	Leak test connections
C	Lockwire	0.020-inch diameter AN995CU MS20995CU	Commercially available	Lockwire oxygen cylinder valve
D	Torque wrench (0 to 600 inch-pounds)			To tighten nut at cylinder

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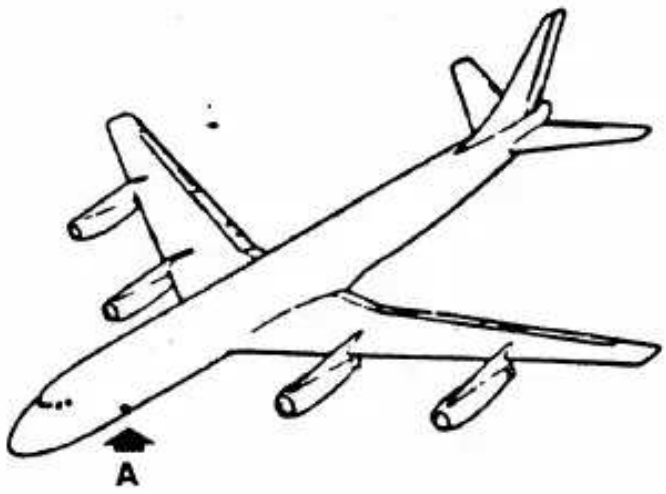
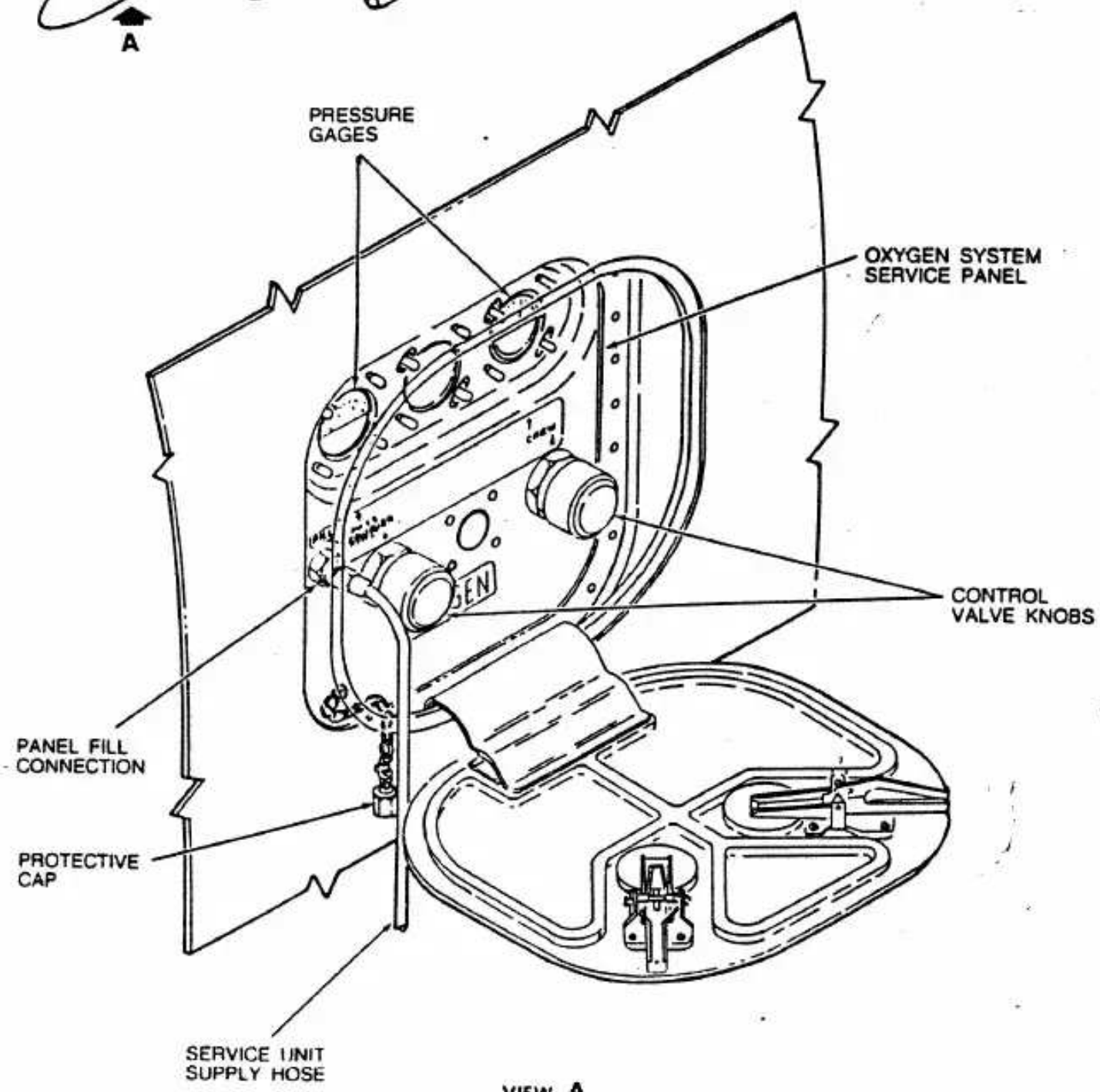
TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL





VIEW A

HA2-10001

Panel Installation Cylinder Refill-Crew
Figure 301
(Airplanes with oxygen service panel)

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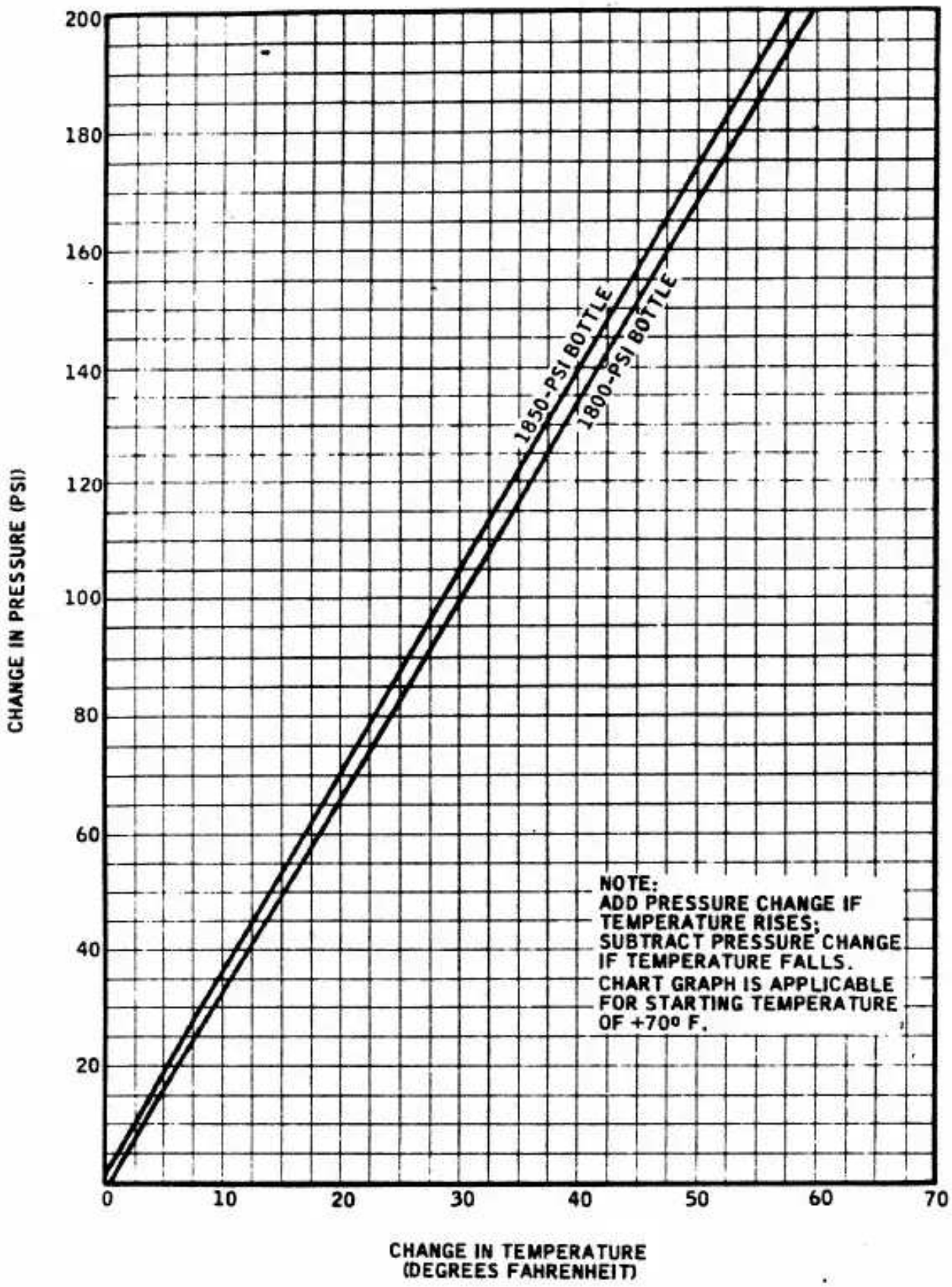
TEMPORARY REVISION



HA2-1487

Oxygen Cylinder Pressure/Temperature
Correction Chart
Figure 302

3. Servicing Oxygen System (Airplanes With Servicing Panel)

A. Service crew/courier oxygen cylinders.

WARNING: HIGH-PRESSURE OXYGEN CYLINDERS ARE TO BE SERVICED AND/OR HANDLED BY AUTHORIZED PERSONNEL ONLY.

WARNING: ENSURE THAT SERVICE HOSE, FILL FITTINGS AND SERVICE PANEL ARE FREE OF DIRT, OIL, OR GREASE WHICH MIGHT ENTER PANEL FILL LINE CONNECTION.

WARNING: TURN ALL VALVE CONTROLS AND FITTINGS SLOWLY TO PREVENT FRICTION WHICH MIGHT CAUSE FIRE.

(1) Remove fill connector protective cap. Connect service unit hose to panel fill connection (See Figure 301).

(2) Slowly open applicable service panel control valve or valves.

(3) Slowly open service unit supply valve.

(4) Monitor corresponding pressure gage on service panel.

NOTE: Oxygen flowing through the service panel fill fitting is directed to the recharging regulator which regulates oxygen flow to the cylinders and prevents overheating during the recharging cycle. When the cylinders are fully charged, the recharging regulator will automatically close, and the applicable gage should indicate 1850 (+0, -20) psig (12755 + 0,- 138 kPa) pressure at 70°F (21.1°C). See pressure temperature correction chart Figure 302.

(5) Slowly close applicable service panel control valve or valves.

(6) Slowly close service unit supply valve.

(7) Remove service hose, install fill fitting protective cap. Torque protective cap fingertight.

(8) Close access door.

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4. Servicing Oxygen System (Airplanes With Replacement Cylinders)

A. Remove crew/courier oxygen cylinders.

WARNING: HIGH-PRESSURE OXYGEN CYLINDERS ARE TO BE SERVICED AND/OR HANDLED BY AUTHORIZED PERSONNEL ONLY.

(1) Remove oxygen cylinder cover panel.

WARNING: TURN ALL VALVE CONTROLS AND FITTINGS SLOWLY TO PREVENT FRICTION WHICH MIGHT CAUSE FIRE.

(2) Slowly close applicable oxygen cylinder shutoff valve.

(3) Bleed system line pressure by depressing applicable diluter-demand regulator toggle lever to test mask position.

(4) Disconnect overboard discharge oxygen line from applicable oxygen cylinder shutoff valve.

CAUTION: CAP ALL OPEN CONNECTIONS TO PREVENT DIRT, OIL, OR GREASE FROM ENTERING SYSTEM.

(5) Disconnect applicable oxygen regulator from oxygen cylinder.

(6) Loosen and open applicable oxygen cylinder strap clamps.

WARNING: HANDLE OXYGEN CYLINDER WITH CARE. DO NOT RELEASE HIGH-PRESSURE OXYGEN FROM CYLINDER UNLESS REGULATOR VALVE IS INSTALLED. SUDDEN RELEASE OF OXYGEN UNDER PRESSURE MAY CAUSE AN EXPLOSION OR FIRE, OR CAUSE CYLINDER TO BECOME A DANGEROUS, UNCONTROLLABLE OBJECT.

(6) Remove applicable oxygen cylinder from mounting bracket.

B. Install Crew/Courier Oxygen Cylinder

(1) Position fully charged oxygen cylinder in mounting bracket with oxygen cylinder valve outlet aligned with pressure regulator.

NOTE: The cylinder should contain 1850 (+0, -20) (12755 +0, -138 kPa) psig oxygen pressure at a temperature of 70°F (21.1°C). See Figure 302, cylinder pressure temperature correction chart.

WARNING: HANDLE OXYGEN CYLINDER WITH CARE. DO NOT RELEASE HIGH-PRESSURE OXYGEN FROM CYLINDER UNLESS REGULATOR VALVE IS INSTALLED. SUDDEN RELEASE OF OXYGEN UNDER PRESSURE MAY CAUSE AN EXPLOSION OR FIRE, OR CAUSE CYLINDER TO BECOME A DANGEROUS, UNCONTROLLABLE OBJECT.

TOC

(2) Close clamps and secure straps. Torque nut on bolts to value etched on straps.

(3) Install pressure regulator on oxygen cylinder. Torque regulator hex nut 450 to 500 inch-pounds (50.8 to 56.5 N·m).

(4) Connect overboard drain line to oxygen cylinder shutoff safety valve.

(5) Open oxygen cylinder shutoff valve.

NOTE: To prevent oxygen leaking at the shutoff valve stem, the shutoff valve must be in fully open position.

(6) Safety cylinder shutoff valve in open position using 0.020-inch diameter AN995CU/MS20995CU lockwire.

(7) Use bubble fluid solution to check for oxygen leaks at following connections as applicable:

(a) Cylinder shutoff valve stem
(b) Cylinder pressure gage
(c) Cylinder regulator inlet
(d) Cylinder regulator outlet
(e) Cylinder regulator relief valve
(f) Cylinder overboard drain line

CAUTION: USE CARE TO PREVENT THE BUBBLE FLUID SOLUTION FROM ENTERING ANY VALVE OR FITTING. ALL TESTED PARTS MUST BE WIPED CLEAN AND DRIED IMMEDIATELY AFTER TESTING.

(8) Install oxygen cylinder cover panel.

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TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

TEMPORARY REVISION 12-8

FILING INSTRUCTIONS: Insert this Temporary Revision adjacent to 12-20-5, CODE 50, Page 303, Servicing.

Retain this Temporary Revision until notified to remove it.

DESCRIPTION AND REASON: This Temporary Revision deletes Chapter 12-20-6, CODE 50, Pages 301 through 305. This section is a duplication of chapter 12-20-2.

EFFECTIVITY: ALL

Remove Pages 301 through 305 of Chapter 12-20-6, CODE 50, dated 1 September 82. These pages are an exact duplication of Pages 301 through 305, Chapter 12-20-2, CODE 51.

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TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
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MAINTENANCE MANUAL

TEMPORARY REVISION 12-10

FILING INSTRUCTIONS: Insert this Temporary Revision adjacent to 12-85-1, CODE 50, Page 301, Servicing, or in microfilm supplement by Chapter/Section/Subject.

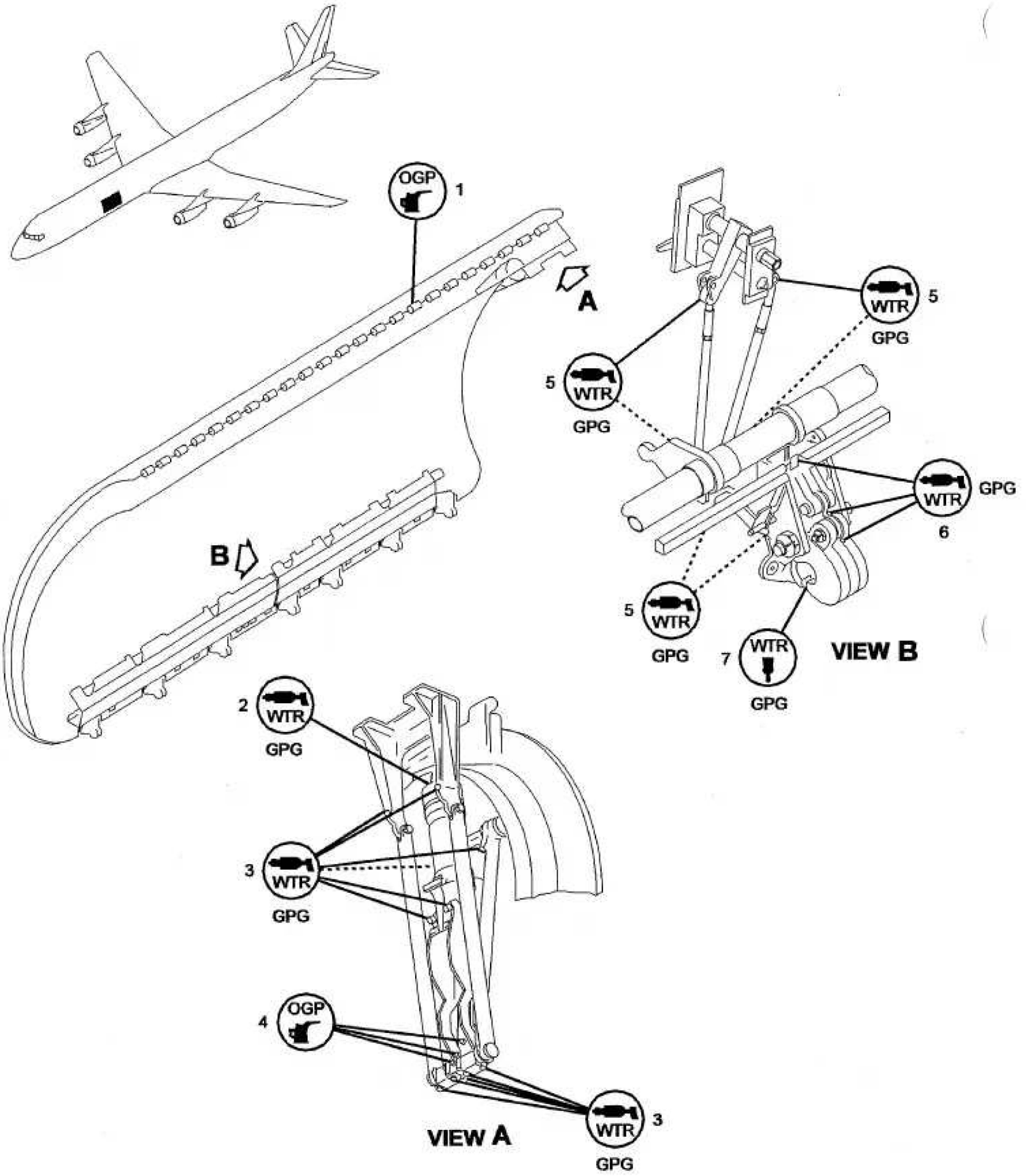
Retain this Temporary Revision until notified to remove it.

DESCRIPTION AND REASON: This Temporary Revision provides a replacement general-purpose grease (BMS 3-33) for on-aircraft lubrication.

EFFECTIVITY: DC-8-70 ALL

TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL



HA2-8989A

Upper Cargo Door - Lubrication
Figure 301 (Sheet 1)

TEMPORARY REVISION

DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

SERVICE CHART - RECOMMENDED LUBRICATION

	ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
	*1	Door Hinge	OGP	Oil can	1
R	2	Actuating Cylinder Attach Point	WTR/GPG	Gun	1F
R	3	Linkage	WTR/GPG	Gun	11
R	4	Lock Assembly	OGP/GPG	Oil Can	3
R	5	Rod Ends	WTR/GPG	Gun	6F
R	6	Door Latches	WTR/GPG	Gun	21
R	**7	Hook	WTR/GPG	Brush	7

*Oil lightly and wipe off excess.

**Apply light coat of grease to striking surface.

R WTR grease - Wide Temperature Range - MIL-G-81322 or
R GPG grease - BMS 3-33 (or equivalent)

R NOTE: If changing grease from one specification or brand to
R another, do the grease change procedure (see DC-8-60 AMM,
R Chapter 12-80-0, Page 201).

OGP - Oil - General Purpose Corrosion Preventative - VV-L-800

Frequency Interval Recommended - On Condition

Upper Cargo Door - Lubrication
Figure 301 (Sheet 2)

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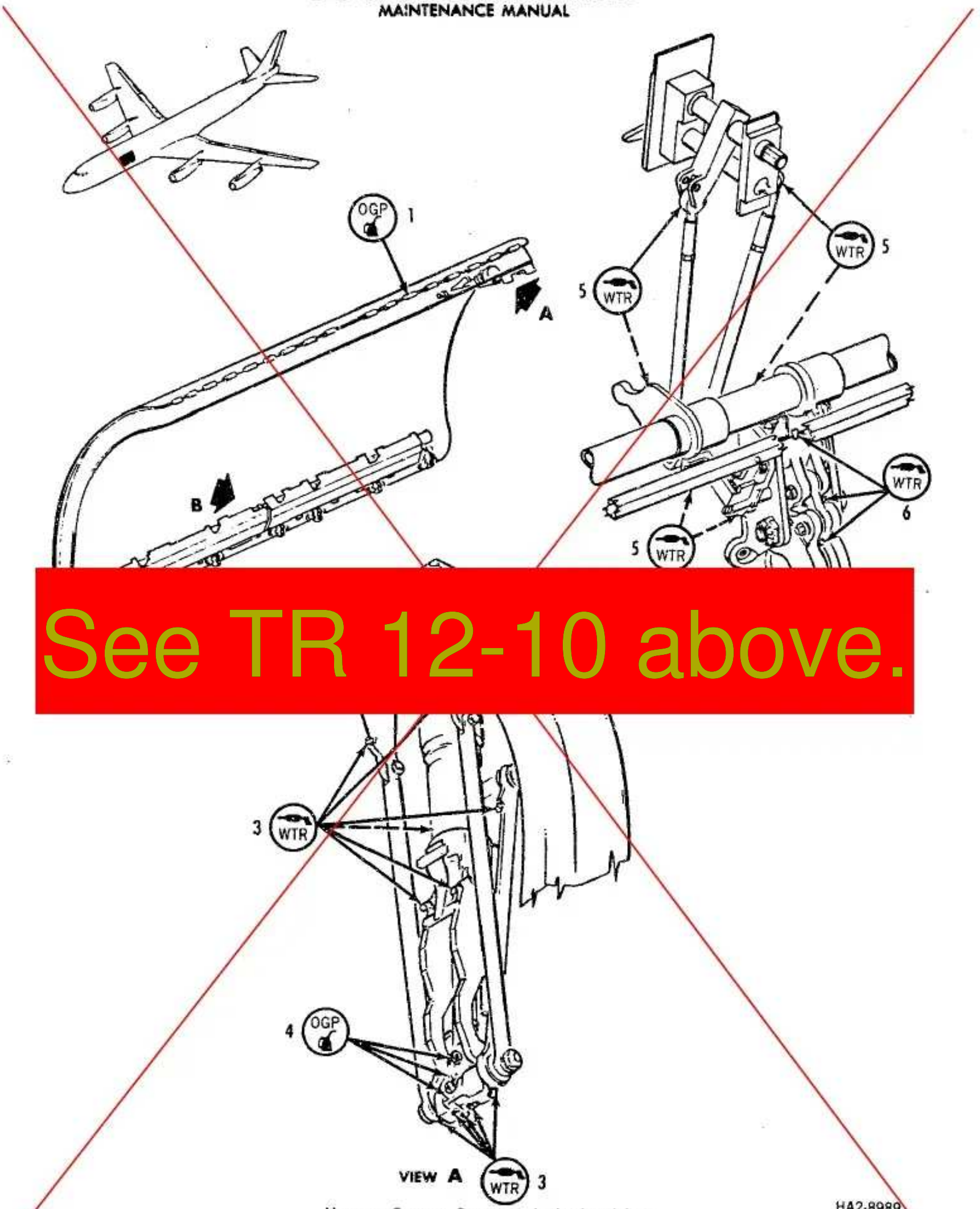
DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL



Upper Cargo Door - Lubrication
Figure 301 (Sheet 1)

HA2-8989

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DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
*1	Door Hinge	OGP	Oil Can	1
2	Actuating Cylinder Attach Point	WTR	Gun	1F
3	Linkage	WTR	Gun	11
	Lock Assembly	OGP	Oil Can	3
	Rod Ends	WRT	Gun	6F
	Door Latches	WRT	Gun	21
**7				

See TR 12-10 above.

**Apply light coat of grease to striking surface.

WR - Grease - Wide Temperature Range - MIL-G-81322

OG - Oil - General Purpose Corrosion Preventative - VV-L-800

Frequency Interval Recommended - On Condition

Upper Cargo Door - Lubrication
Figure 301 (Sheet 2)

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DOUGLAS AIRCRAFT CO., INC.

DC-8 SEVENTY SERIES

MAINTENANCE MANUAL

POWER PLANT - LUBRICATION

1. General

A. It is recommended that the airplane be secured in an area suitable for lubrication servicing. The area should be free of sand, dirt, dust, and other environmental conditions that might contribute to improper servicing.

B. Observe power plant maintenance practices safety precautions before and during lubrication servicing as outlined in the engine chapters.

C. The recommended lubrication servicing equipment should include grease guns, oil cans, brushes, clean cloths, and other facilities as required for proper lubrication.

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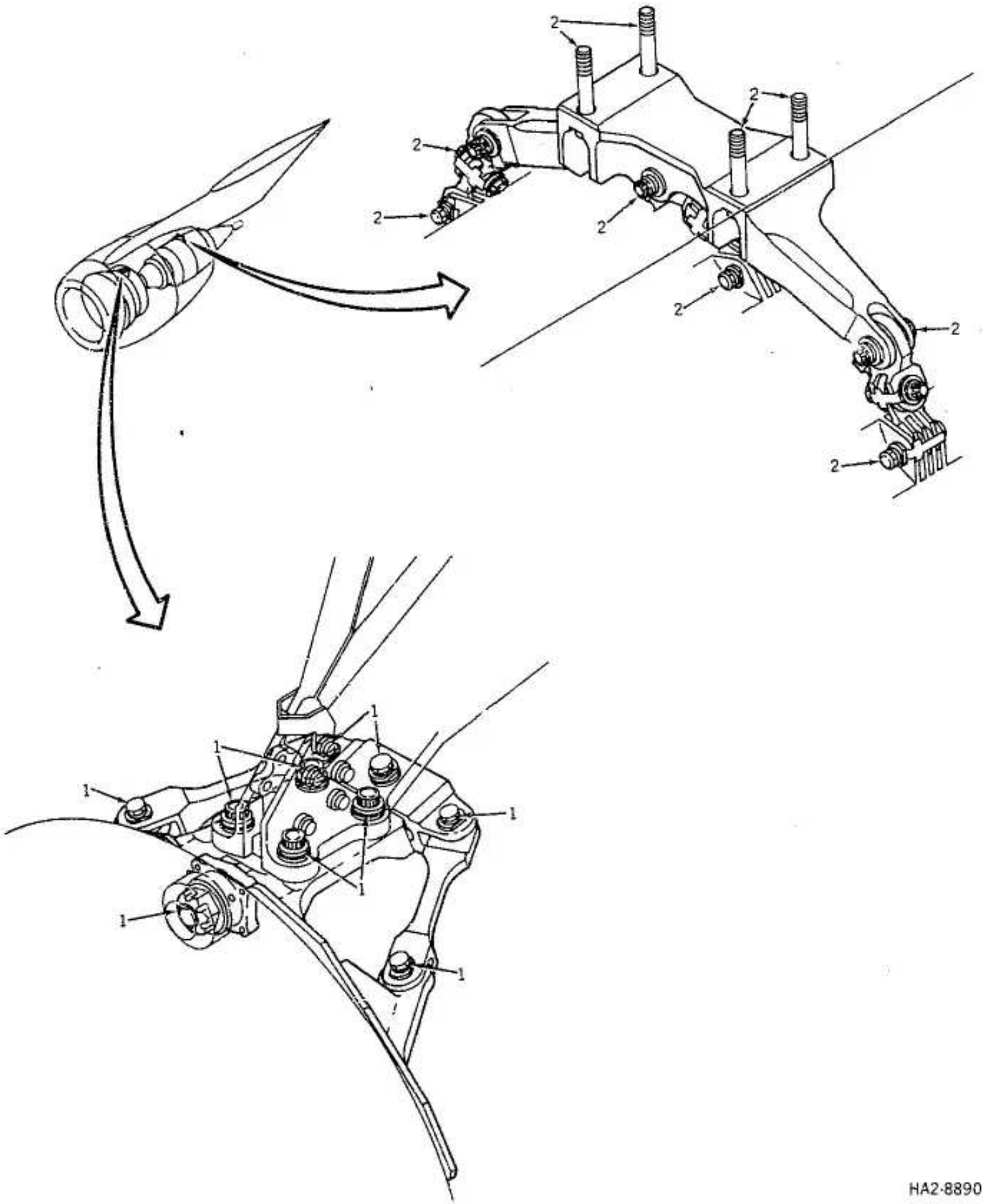

HA2-8890

Engine Mount -- Lubrication
Figure 301 (Sheet 1)

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MAINTENANCE MANUAL

SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1*	Engine forward mount bolts and bushings	MS	Brush	
2*	Engine aft mount bolts and bushings	MS	Brush	

* Apply coat of oil to shank and threads. After installation, coat entire nut-bolt assembly with oil for corrosion prevention.

NOTE: Oil should be thoroughly stirred before applying.

MS oil - Moly silicone - MIL-L-25681.

For lubrication frequency interval recommendation, see 12-80-0, General-Servicing.

Engine Mount -- Lubrication
Figure 301 (Sheet 2)

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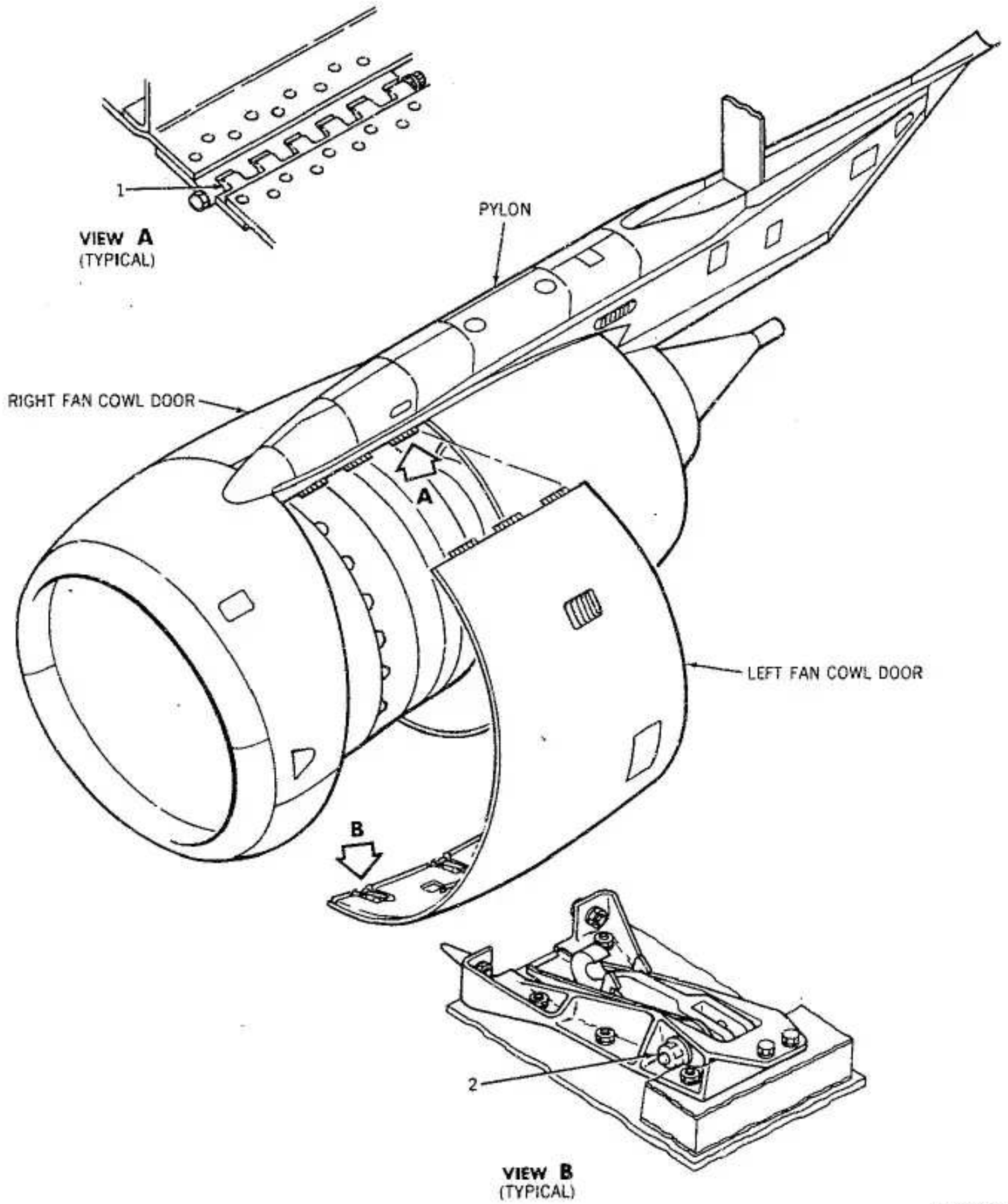
DOUGLAS AIRCRAFT CO., INC.

DC-8 SEVENTY SERIES

MAINTENANCE MANUAL



Engine Cowl Doors -- Lubrication
Figure 302 (Sheet 1)

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DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
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SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1*	Cowl door hinge pins	OGP	Oilcan - brush	3 (each cowl door)
2*	Cowl door latch mechanism	OGP	Oilcan - brush	3 (each left door)

* Oil lightly and wipe off excess

OGP oil - General purpose

For lubrication frequency interval recommendation, see 12-80-0, General Servicing.

Engine Cowl Doors -- Lubrication
Figure 302 (Sheet 2)

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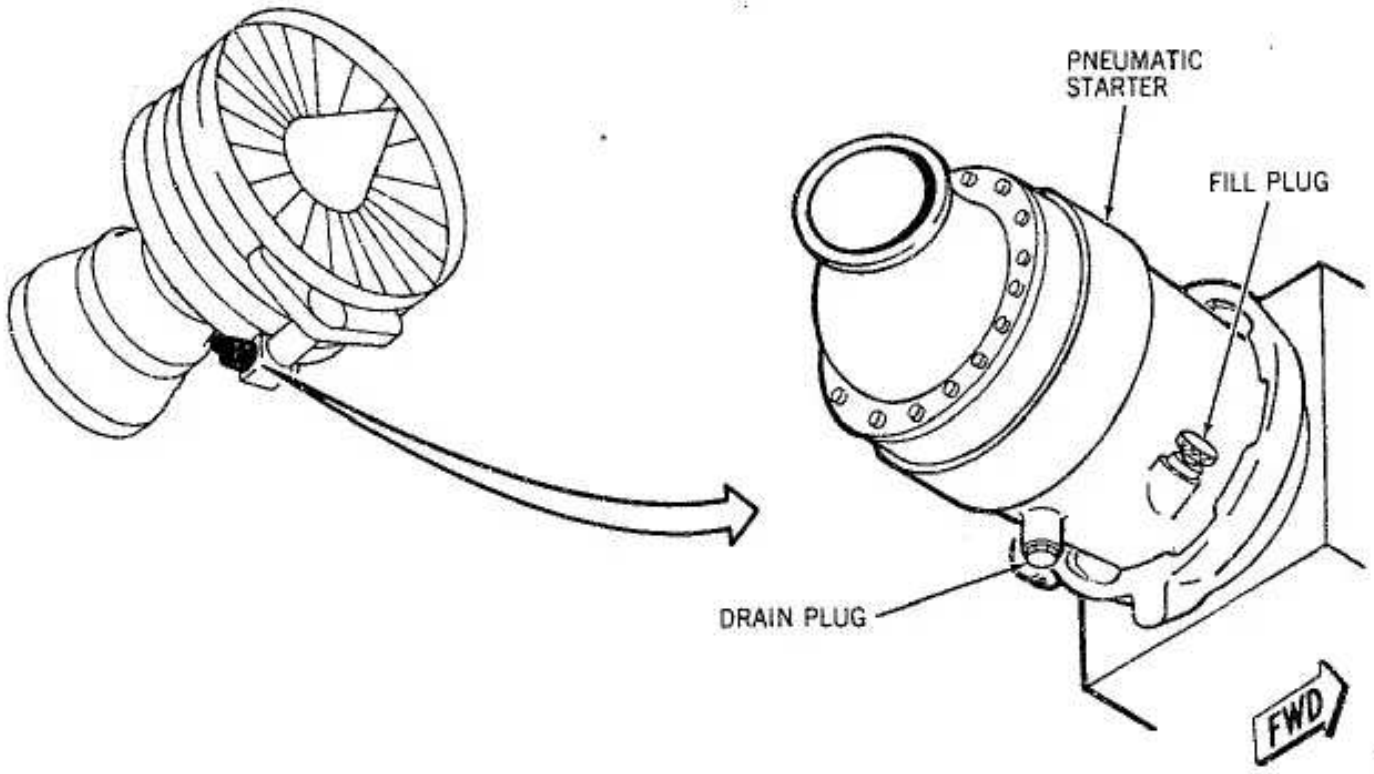

HA2-8878

Engine Pneumatic Starter -- Lubrication
Figure 303 (Sheet 1)

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SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1* 1**	Starter oil sump	OJE	Pump-type oilcan or service unit dispenser	4
2***	Starter drive splines	GMD	Brush	-

* Fill to bottom of fill port threads. Oil capacity is approximately 570 cubic centimeters (19.27 fluid ounces). Install new packing on fill plug. Install fill plug; tighten plug to torque of 220 to 240 inch-pounds. Safety plug with lockwire.

** To drain, remove fill port and drain plugs; allow starter to drain completely. Inspect/check oil and magnetic drain plugs for metal particles. (Fine metal particles indicate normal wear, larger particles indicate internal component damage.) Clean drain plug; install and tighten plug to torque of 65 to 85 inch-pounds. Safety drain plug with lockwire. Install fill plug as noted above.

CAUTION: DO NOT OVERFILL STARTER HOUSING.

*** Apply coat of grease to drive splines.

R OJE oil - Jet engine (General Electric specification D50TF1, as revised)

GMD grease - Aeroshell 17 (or equivalent)

For lubrication frequency interval recommendation, see 12-80-0, General-Servicing.

Engine Pneumatic Starter -- Lubrication
Figure 303 (Sheet 2)

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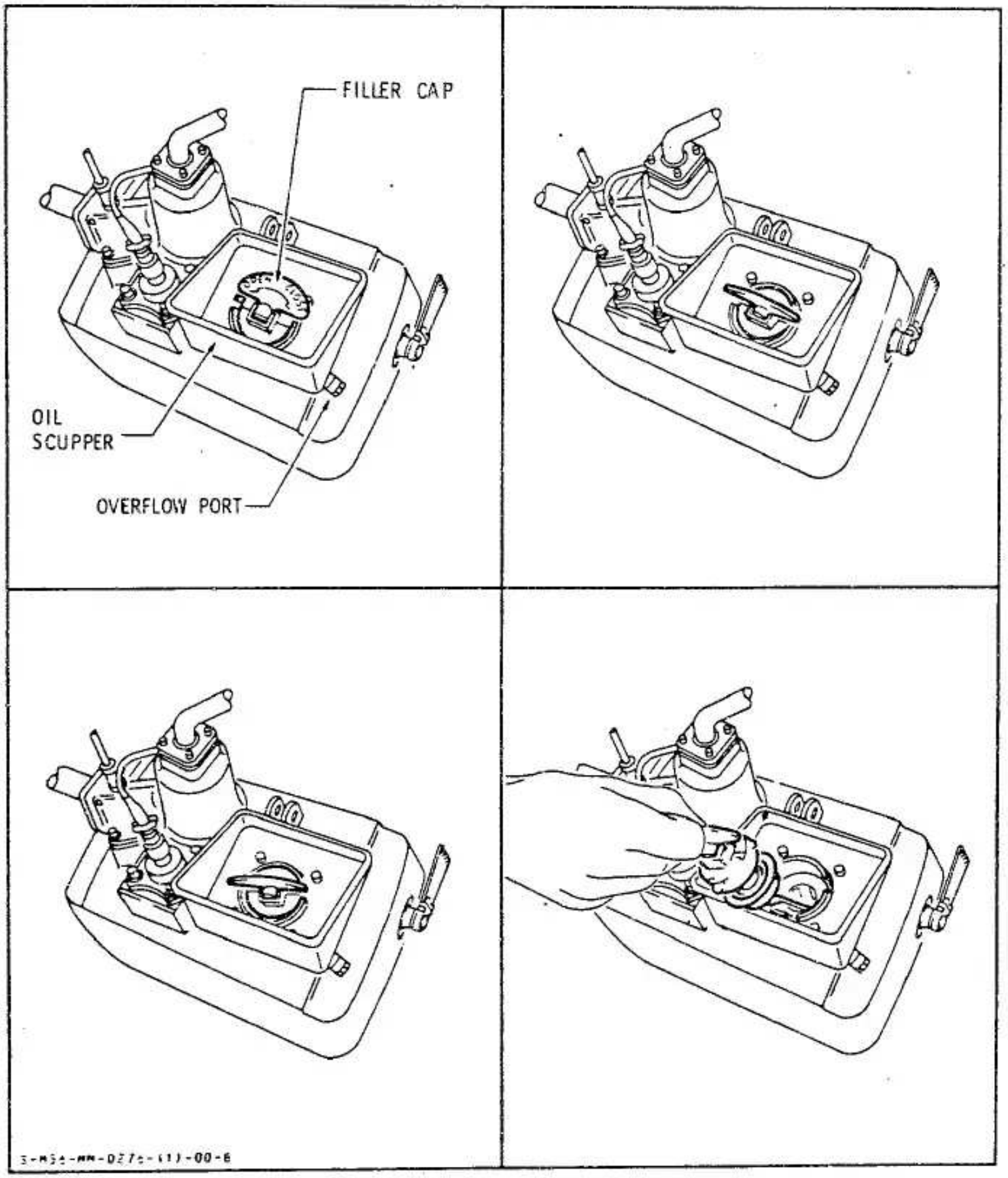

Engine Oil System -- Lubrication
Figure 304 (Sheet 1)

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DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
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SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1*	Engine oil tank	OJE	can or dispenser	4

* See engine oil system servicing procedures, 12-20-1.

R OJE oil - Jet engine (General Electric specification D50TF1, as revised)

For lubrication frequency interval recommendation, see 12-80-0, General-Servicing.

Engine Oil System -- Lubrication
Figure 304 (Sheet 2)

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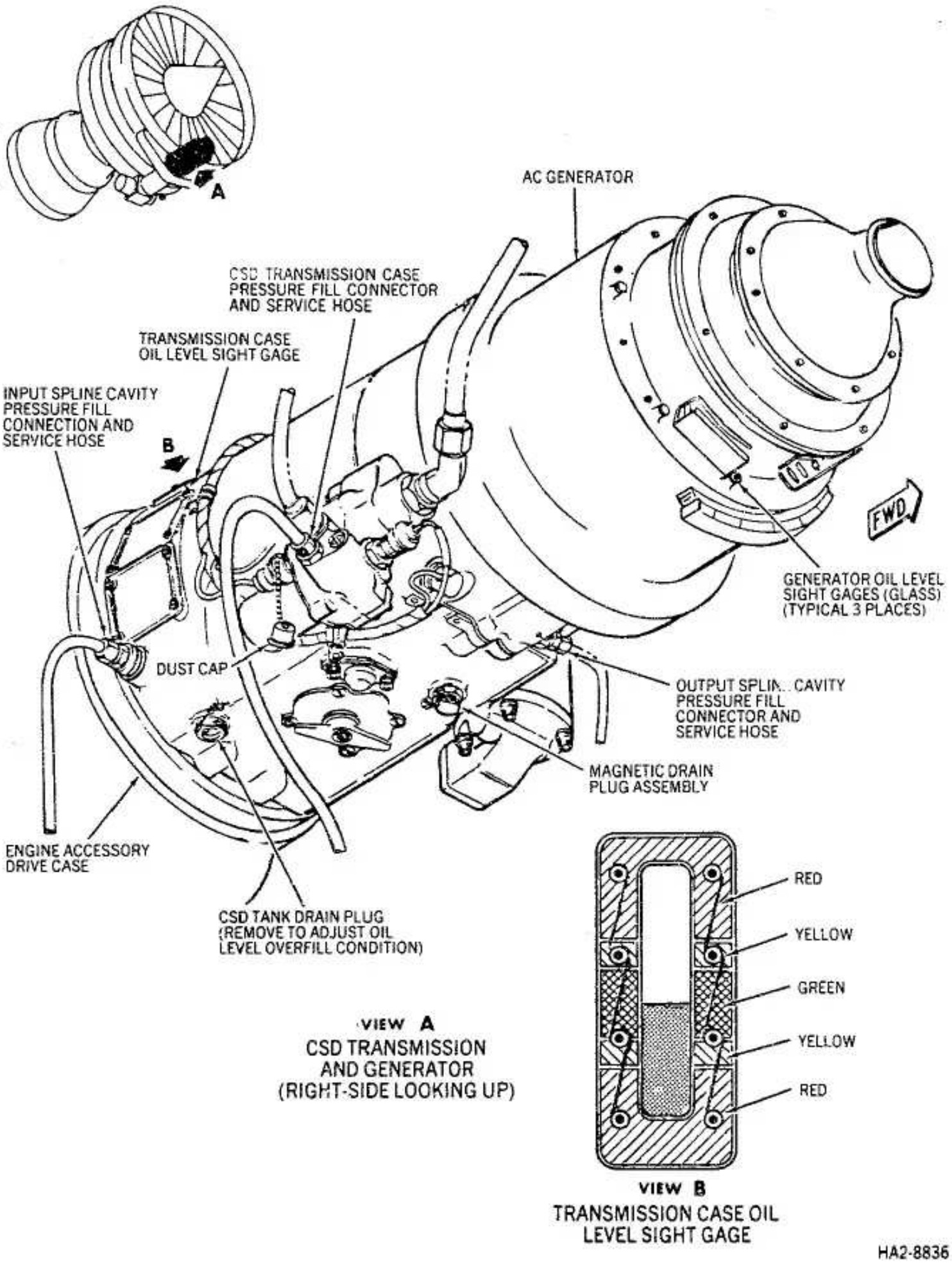
DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL



VIEW A
CSD TRANSMISSION AND GENERATOR (RIGHT-SIDE LOOKING UP)

VIEW B
TRANSMISSION CASE OIL LEVEL SIGHT GAGE

HA2-8836

Constant Speed Drive (CSD) Transmission -- Lubrication
Figure 305 (Sheet 1)

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DOUGLAS AIRCRAFT CO., INC.
DC-8 SEVENTY SERIES
MAINTENANCE MANUAL

SERVICE CHART - RECOMMENDED LUBRICATION

ITEM NO.	ITEM DESCRIPTION	LUBE TYPE	APPLICATION	NUMBER OF FITTINGS OR AREAS
1*	Input spline cavity pressure-fill connection	OJE	Pressure service cart	-
2**	CSD transmission case pressure-fill connection	OJE	Pressure service cart	-
3***	Output spline cavity pressure-fill connection	OJE	Pressure service cart	-

* Input spline cavity - To fill: Remove input spline cavity overfill standpipe drain cap. Connect service hose to input cavity pressure-fill connector. Slowly fill cavity (25 to 40 psi pressure) until oil flows from engine drain mast. Install pressure-fill connector cap; tighten cap to torque of 25 to 30 inch-pounds. Safety cap with lock-wire. To drain: Remove input cavity drain plug assembly; allow cavity to drain thoroughly. Install drain plug; tighten plug to torque of 30 to 50 inch-pounds. Safety plug with lockwire.

** Transmission case - Check sight gage at preflight. To add oil: Connect pressure service hose to case pressure-fill connector. Slowly fill transmission oil system (25 to 30 psi oil fill pressure) until oil appears in green area of sight gage glass. Stop oil flow; wait approximately 3 minutes for oil level to stabilize. Check oil level gage; add or drain as required to obtain visual indication of oil level within green area on gage. Remove service hose.

CAUTION: DO NOT OVERFILL TRANSMISSION CASE. OVERFILLING CAN CAUSE OVERHEATING AND OIL SLUDGING, RESULTING IN DRIVE DAMAGE.

If drain plug is removed to adjust oil level, install new gasket (MS17413-112, o-ring) on drain plug. Install plug; tighten plug to torque of 75 to 100 inch-pounds. Safety plug with lockwire.

For oil change and/or filter replacement, see Chapter 24.

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DOUGLAS AIRCRAFT CO., INC.
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MAINTENANCE MANUAL

SERVICE CHART - RECOMMENDED LUBRICATION

*** Output spline cavity - Check generator sight gages at preflight. To fill: Connect service hose to output spline cavity pressure-fill connector. Slowly fill cavity (25 to 40 psi pressure) until oil starts to flow from overboard drainline. Install pressure-fill connector cap; tighten cap to torque of 25 to 30 inch-pounds. Safety cap with lockwire. To drain: Remove pressure-fill connector check valve. Allow cavity to drain thoroughly. Install check valve; tighten valve to torque of 30 to 50 inch-pounds. Install cap; tighten cap to torque of 25 to 30 inch-pounds. Safety cap with lockwire.

NOTE: The output spline cavity serves as an oil reservoir for the generator lubrication system. The generators are self lubricated and do not require lubrication servicing other than maintaining an adequate oil supply in the output spline cavity.

OJE oil - Jet engine (Sundstrand specification MS 02.40, as revised)

For lubrication frequency interval recommendation, see 12-80-0, General-Servicing.

Constant Speed Drive (CSD) Transmission -- Lubrication
Figure 305 (Sheet 3)